THE LANCET
Public Health

Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Peñalvo JL, Sagastume D, Mertens E, et al. Effectiveness of workplace wellness programmes for dietary habits, overweight, and cardiometabolic health: a systematic review and meta-analysis. *Lancet Public Health* 2021; **6:** e648–60.

Running title: Impact of workplace interventions on health

Effectiveness of workplace wellness programs for dietary habits, overweight, and cardiometabolic health: a systematic review and meta-analysis

Prof José L. Peñalvo, PhD[1,2], Diana Sagastume, MSc[1], Elly Mertens, PhD[1], Irina Uzhova, PhD [3], Jessica Smith, PhD[2,4], Jason HY Wu, PhD [5], Eve Bishop, MSc[2], Jennifer Onopa, MSc[2], Peilin Shi, MSc[2], Prof Renata Micha, PhD[2,6], and Prof Dariush Mozaffarian, PhD[2]

[1] Non-Communicable Diseases Unit, Department of Public Health, Institute of Tropical Medicine, Antwerp, Belgium.

[2] Friedman School of Nutrition Science and Policy, Tufts University, Boston, MA, USA.

[3] Department of Health and Nutritional Sciences, Institute of Technology Sligo, Sligo, Ireland.

[4] Bell Institute of Health and Nutrition, General Mills, Minneapolis, MN, USA.

[5] The George Institute for Global Health, Faculty of Medicine, University of New South Wales, Sydney, Australia.

[6] Department of Food Science & Human Nutrition | University of Thessaly, Greece.

Correspondence

Prof José L. Peñalvo, Institute of Tropical Medicine, Nationalestraat 155, 2000 Antwerp (Belgium). Email: jpenalvo@itg.be

KEYWORDS

Workplace wellness program; multi-component interventions; dietary behaviour; cardiometabolic risk markers.

Table of Contents

Abbreviations

WWPs: Workplaces wellness programs
WHO: World Health Organization
NCDs: Non-communicable Diseases
T2DM: Type 2 Diabetes Mellitus
SBP: Systolic blood pressure
DBP: Diastolic blood pressure
BMI: Body mass index
WC: Waist circumference
SE: Standard error
95%CI: 95% confidence interval
CVD: Cardiovascular disease
PUFA: Polyunsaturated fatty acids
WHR: Waist-to-hip ratio
FPG: Fasting plasma glucose
HDL: High-density lipoprotein cholesterol
LDL: Low-density lipoprotein cholesterol
TG: Triglycerides
T-Cho: Total cholesterol
LMIC: Low-middle income countrie

Section 1: Protocol

Study Protocol

Objective

To conduct a systematic review and meta-analysis of the impact of workplace wellness programs on dietary change and measures of cardiometabolic risk factors.

Methods

The recommendations of the Meta-analysis of Observational Studies in Epidemiology (MOOSE) and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines will be followed for observational studies and randomised control trials (RCTs), respectively, during all stages of the design, implementation, and reporting of this meta-analysis.

Definition of Exposure and Outcomes:

1. *Exposure/Intervention:* Any multicomponent workplace wellness intervention or financial incentives offered in the workplace that targets improvements in diet and/or adiposity of the general workforce.
2. *Outcome:* Any change in adiposity, cardiometabolic risk factors, or diet.

Inclusion criteria

1. *Design:* Interventional (randomised or quasi-experimental) controlled trials were eligible that assess the above relationships. Commentaries, protocols, or review articles will be included as a source of references.
2. *Population:* Adult populations in the workplace. Any intervention that targets the overall workplace and not specific individuals or groups except for those that target overweight or obese groups.
3. *Setting:* Any workplace.
4. *Exposure/Intervention:* Multicomponent interventions that use multiple approaches simultaneously, including, for example, education, cafeteria and/or vending machine changes, promotion of stair use, financial incentives, changes to health insurance policies, and improved accessibility to, or discounts for, gym memberships, that target dietary changes and/or weight loss.
5. *Outcome:*
    a. changes in adiposity (body weight, BMI, waist circumference, skinfold, body fat percentage);
    b. change in dietary behaviours as measured by FFQ, 24-hr recall or dietary records or cafeteria purchases
    c. biomarker changes (blood pressure, cholesterol, apolipoproteins, triglycerides, and plasma glucose and insulin) or changes to comprehensive risk scores;
    d. disease outcome, if available.
6. *Effect measure:* Studies have to provide an estimate of the difference in the outcome specified and a measure of uncertainty for the reported difference, or report the relative risk estimates (or odds ratio) for other outcomes with standard error (or information to compute them; or such data can be obtained from authors).
7. *Language:* English

Exclusion Criteria

1. *Design:* observational studies, quasi-experimental without an external control or comparison group, studies using ecological, theoretical (laboratory experiments), simulation (modelling) designs. Commentaries and reviews will be included in the initial screening as a source of references. Duplicate publications from the same study will also be included in the initial screening for further assessment of the full-text. In such cases, the decision will be made after an assessment of the full-text of the articles and based on the quality assessment of each study.
2. *Population:* children and any non-employed individuals or any intervention aimed solely towards disease-specific management i.e. workplace wellness programs for individuals with type 2 diabetes
3. *Setting:* schools, non-workplace organizations e.g. community centres or religious organization
4. *Exposure/Interventions:*

    a. Focused, single-component programs (the impact of other focused interventions, such as front-of-label packing, point-of-purchase menu changes, and food pricing) will be evaluated in separate meta-analyses)
    b. Tailored individual-level interventions that are not part of a multi-component intervention, even if these take place within a worksite.
    c. Only a workplace health screening program without a multicomponent intervention
    d. work/life balance programs that do not target an improvement in adiposity outcomes or dietary outcomes
    e. smoking cessation only programs
5. *Outcome:* changes in attitude regarding health, diet, physical activity or changes in health care costs to the company, absenteeism, changes in mental health, overall wellbeing or quality of life
6. *Date:* Published before 1990.
7. *Language:* Non-English articles.

Databases:

1. *1st broad search:*
    a. PubMed/MEDLINE
    b. Embase (Biomedical database from Elsevier)
    c. EconLit (Economic-related literature)
    d. PAIS International (Public Affairs Information Services)
    e. USDA-ERS (US Department of Agriculture-Economic Research Service)
    f. The Cochrane Library
    g. Web of Knowledge; Web of Science, CABI (CAB Abstracts and Global Health)
    h. CINAHL (Cumulative Index to Nursing and Allied Health Literature)
    i. Faculty of 1000
    j. ERIC (Education Resources Information Center)
2. *2nd search:*
    a. additional online searches
    b. hand searches of citations
    c. policy statements and guidance from the Institute of Medicine, World Health Organization, Centers for Disease Control and Prevention, US Department of Health and Human Services and other similar international, national and local agencies
    d. communication with key contacts and experts in the field

Section 2: Materials and methods

2.1 Search terms

Pubmed/MEDLINE
Limits: 1990-2020
("workplace"[Mesh] OR workplace[title/abstract] OR worksite[title/abstract] OR occupation[title/abstract] OR "employment"[Mesh] OR employment[title/abstract] OR employee*[title/abstract] OR employer*[title/abstract] OR office[title/abstract] OR "occupational health"[Mesh] OR "occupational health services"[Mesh]) AND
("health promotion"[Mesh] OR "health promotion"[title/abstract] OR "health education"[Mesh] OR "health education"[title/abstract] OR "employee incentive plans"[Mesh] or "employee incentive plan"[title/abstract] OR "behavior therapy"[Mesh] OR "counseling"[Mesh] OR counseling[title/abstract] OR counselling[title/abstract] OR "health benefit plans, employee"[Mesh] OR "health benefit plan*"[title/abstract] OR "health services/prevention and control"[Mesh] OR prevention[title/abstract] OR "nutritional sciences/education"[Mesh] OR "nutrition education"[title/abstract] OR "obesity/diet therapy"[Mesh] OR "diet therapy"[title/abstract] OR "obesity/therapy"[Mesh] OR "obesity/prevention and control"[Mesh] OR "overweight/therapy"[Mesh] OR "primary prevention"[Mesh] OR "diet/prevention and control"[Mesh] OR "diet/therapy"[Mesh] OR "economic incentive"[title/abstract])
AND
(“weight loss”[Mesh] OR “weight loss”[title/abstract] OR “body composition”[Mesh] OR “body composition”[title/abstract] OR “body fat distribution”[title/abstract] OR adiposity[title/abstract] OR “body mass index”[Mesh] OR “body mass index”[title/abstract] OR “waist circumference”[Mesh] OR “waist circumference”[title/abstract] OR “waist-hip ratio”[Mesh] OR “waist to hip ratio”[title/abstract] OR WHR[title/abstract] OR “abdominal obesity”[title/abstract] OR “central obesity”[title/abstract] OR “diabetes Mellitus, type 2/prevention and control”[Mesh] OR diabetes[title/abstract] OR “blood glucose”[Mesh] OR “blood glucose”[title/abstract] OR “hyperglycemia/prevention and control”[Mesh] OR hyperglycemia[title/abstract] OR hyperglycaemia[title/abstract] OR “insulin resistance/prevention and control”[Mesh] OR “insulin resistance”[title/abstract] OR “blood pressure”[Mesh] OR “blood pressure”[title/abstract] OR “cardiovascular diseases/prevention and control”[Mesh] OR “cardiovascular disease*”[title/abstract] OR “heart disease*”[title/abstract] OR hypertension[title/abstract] OR “cholesterol/blood”[Mesh] OR cholesterol[title/abstract] OR “lipoproteins/blood”[Mesh] OR lipoprotein*[title/abstract] OR apolipoprotein[title/abstract] OR triglyceride*[title/abstract] OR “blood lipids”[title/abstract] OR “heart diseases/prevention and control”[Mesh] OR “food habits”[Mesh] OR food[title/abstract] OR “beverages”[Mesh] OR beverage*[title/abstract] OR obesity[title/abstract] OR overweight[title/abstract] OR nutrition[title/abstract] OR fruit*[title/abstract] OR vegetable*[title/abstract] OR soda*[title/abstract] OR juice*[title/abstract] OR meat*[title/abstract] OR “junk food*”[title/abstract] OR “fast food*”[title/abstract] OR dairy[title/abstract] OR candy[title/abstract] OR candies[title/abstract] OR “fruit drink*”[title/abstract] OR “energy drink*”[title/abstract] OR fat[title/abstract] OR fats[title/abstract] OR oil*[title/abstract] OR saturated[title/abstract] OR “trans fatty”[title/abstract] OR “trans fat”[title/abstract] OR “trans fats”[title/abstract] OR “omega-3”[title/abstract] OR polyunsaturated[title/abstract] OR unsaturated[title/abstract] OR monounsaturated[title/abstract] OR “dietary carbohydrates”[Mesh] OR carbohydrate[title/abstract] OR “dietary proteins”[Mesh] OR protein[title/abstract] OR macronutrient[title/abstract] OR “sodium, dietary”[Mesh] OR sodium[title/abstract] OR salt[title/abstract] OR sugar*[title/abstract] OR “processed food*”[title/abstract] OR “diet”[Mesh] OR diet[title/abstract] OR “disease management”[Mesh] OR “disease management”[title/abstract])

EMBASE (Biomedical database from Elsevier)
([male]/lim OR [female]/lim) AND ([adult]/lim OR [middle aged]/lim OR [aged]/lim) AND [humans]/lim AND [1990-2020]/py 'workplace'/exp/mj OR 'employee'/exp/mj OR 'office worker'/exp/mj OR 'occupational health'/exp/mj OR 'work environment'/exp/mj AND [1990-2014]/py AND 'health promotion'/exp/mj OR 'health education'/exp/mj OR 'employee incentive plan':ta,ab OR 'health program'/exp/mj OR 'nutrition education'/exp/mj OR 'diet therapy'/exp/mj OR 'primary prevention'/exp/mj OR 'lifestyle modification'/exp/mj OR 'occupational health'/exp/mj OR 'occupational health services'/exp/mj OR 'worksite wellness program' AND [1990-2020]/py AND 'weight reduction'/exp/mj OR 'blood glucose level'/exp/mj OR 'hyperglycemia'/exp/mj OR 'insulin resistance'/exp/mj OR 'cardiovascular disease'/exp/mj OR 'hypertension'/exp/mj OR 'high density lipoprotein'/exp/mj OR 'lipid'/exp/mj OR 'low density lipoprotein cholesterol'/exp/mj OR 'cholesterol'/exp/mj OR 'triacylglycerol'/exp/mj OR 'food'/exp/mj OR 'beverage'/exp/mj OR 'obesity'/exp/mj OR 'cardiovascular risk'/exp/mj OR 'weight control'/exp/mj AND [1990-2020]/py

Web of Science
Limits: 1990-2020
Setting:
TI
workplace OR worksite OR occupation OR employment OR employee OR employer OR occupation
AND
TS
"health promotion" OR "health education" "employee incentive plan" OR "behavior therapy" OR "behaviour therapy" OR "health benefit plan" OR "nutrition education" OR "diet therapy" OR "primary prevention' OR "economic incentive"
AND
TS
"weight loss" OR "body composition" OR "body fat" OR "body mass index" OR diabetes OR "blood glucose" OR hyperglycaemia OR hyperglycemia OR "insulin resistance" OR "blood pressure" OR hypertension OR "cardiovascular disease" OR "heart disease" OR cholesterol OR lipoprotein OR triglyceride OR food OR beverage OR diet OR obesity OR overweight

The Cochrane Library
Limits: 1990-2020
Setting:
TI workplace OR TI employee OR TI employer OR TI worksite OR TI employment OR TI occupation

ERIC (Education Resources Information Center)
Limits: 1990-2019
WORKPLACE
TI workplace OR TI employee OR TI worksite OR TI employment OR TI occupation
AND
AB health promotion OR AB health education OR AB employee incentive program OR AB employee incentive plan OR AB behavior therapy OR AB employee coaching OR AB employee benefits OR AB prevention of chronic diseases OR AB nutrition counseling OR AB economic incentive OR AB diet therapy
AND
AB weight loss OR AB diet OR AB lipoproteins OR AB beverages OR AB diabetes OR AB blood glucose OR AB hyperglycemia OR AB insulin resistance OR AB heart disease OR AB hypertension prevention OR AB blood pressure OR cholesterol

2.2 Extracted information of eligible papers

A) Publication details: authors, year, study name, country, and overall quality score.
B) Study design: randomization and comparator details, unit of randomization, and intention-to-treat.
C) Worksite details: number and size of worksites, company type, and overall company size, percentage of eligible participants, percentage involved, and percentage unionized.
D) Population details: gender, mean age, race/ethnicity, and mean BMI.
E) Intervention characteristics: details on intervention sponsor, timing (paid hours), outreach to families, community and/or environment, and unit of the intervention (individual, group), duration of the intervention and follow up, percentage of participants lost to follow-up, intervention targets, and intervention components.
F) Outcomes: number of outcomes, outcome description, method of data collection, mean values, and measures of uncertainty at baseline and follow-up, subgroup analysis data

Table S1. Bias assessment criteria

Criterion	Range		Description
Design	0-1	1	if randomised trial
		0	if quasi-experimental design of any kind
Assessment of intervention/exposure	0-1	1	if the intervention/exposure has been clearly defined and measured
		0	if the intervention/exposure has not been clearly defined and measured
Assessment of outcome	0-1	1	if the outcome has been clearly defined and measured
		0	if the outcome definition and measurement has not been clearly described
Control for confounding	0-1	1	if RCT or sufficient/ appropriate control for major confounders
		0	if insufficient control for major confounders
Evidence of selection bias	0-1	1	if absence of evidence for selection bias
		0	if substantial presence of evidence for selection bias

Each criterion received a score of 1 or 0 (1 indicating less probability of bias), and an overall bias score was calculated as the sum of individual scores; with 0-3 considered higher probability of bias

2.3 Re-classification of the intervention components into intervention domains

A) Screening: CVD/diabetes risk factor screening with or without individualized feedback, diet screening with or without individualized feedback, and physician advice.
B) Individual education: email/phone messaging, individual educational sessions, websites or web-based components, and newsletters addressing single or combined interventions targets as well as setting dietary or weight loss goals.
C) Group education: group educational sessions addressing single or combined intervention targets, peer-support groups and weight-loss contests without financial incentives.
D) Food environment: interventions in the cafeteria/canteen including menu offering, availability of healthy snacks, and interventions in vending machines.
E) Labelling: food labelling in the cafeteria/canteen, nutrition promotion/signage, or food labelling in vending machines such as health claims and nutritional information.
*F) Financial incent*ive: incentives to improve overall health, CVD/diabetes, diet or other targets.
G) Physical activity: onsite or free/subsidized-membership gyms, classes or other activities, as well as the use of pedometers or wearable active trackers.
H) Self-awareness: mindfulness/meditation, and diet monitoring.
I) Other: components not included in previous groups, including employee advisory committees

Table S2. Study assumptions other than for standard error (SE) or effect size calculation

Author, year	Assumptions
Addley, 2014	Assumed that analysis was only for completers based on presentation of the data (only one n-value)
Agarwal, 2015	None
Allen, 2012	None
Almeida, 2015	None
Atlantis, 2006	None
Balk-Moller, 2017	Assumed total population n=269
Bandoni, 2010	None
Beresford, 2001	None
Bhiri, 2015	None
Braeckman, 1999	None
Campbell, 2002	None
Carr, 2016	Assumed total population n=54
Cawley, 2009	None
Chen, 2008	None
Chen, 2014	None
Chen, 2016	None
Choi, 2017	Assumed total population n=43
Cook, 2011	None
Danquah, 2017	Assumed that the length of the intervention was 3 months
Doran, 2018	None
Doran 2018	The median age of the participants
Edries, 2013	None
Elliot, 2007	None
Emmons, 1999	Fibre data reported as g/1000 kcal. Because most results were reported in grams, we assumed a 2000kcal/day diet and multiplied difference by 2 in order to standardize
Engbers, 2007	None
Engbers, 2006	None
Eshah, 2010	None
Faghri, 2014	SBP and DBP not explicitly stated as mmHg in manuscript or tables. Assumed based on values that mmHg were the units used
Fernandez, 2015	None
Flannery, 2012	None
Fitzgerald, 2019	Study with 3 arms. In Fitzgerald 1 the extracted arms were group control and group education Total population n=174 In Fitzgerald 2 the extracted arms were group control and group environment Total population n=138 In Fitzgerald 3 the extracted arms were group control and group combined Total population n=339
Geaney, 2016	SBP and DBP not explicitly stated as mmHg in manuscript or tables. Assumed based on values that mmHg were the units used
Gerstel, 2013	None
Glasgow, 1997	None
Glasgow, 1995	None
Goetzel, 2010	None
Gomel, 1997	None
Gomel, 1993	None
Gosliner, 2010	None
Guldan, 1992	None
Gysan, 2017	None
Iriyama, 2016	Used 6-month data due to crossover design of intervention
Hebert, 1993	None
Hossain, 2019	Intervention with 4 arms. In Hossain 1 the extracted arms were group A (intervention) and group B (control) In Hossain 2 the extracted arms were group C (intervention) and group D (control)
Hunt, 1993	None
Hutchinson, 2013	None
Jaime, 2013	None
Jamal, 2016	None
Jeffery, 1993	None
Johanning, 1996	None
Kamioka, 2009	None
Kouwenhoven-Pasmooij, 2018	None
Kuehl, 2014	None
Kushida, 2014	Assumed that original data was collected in servings per day given table heading despite categorical reporting
Kwak, 2010	None
Kwak, 2009	None
LaCaille, 2016	None
Lassen, 2011	None
Lemon, 2014	None
Lemon, 2010	None
Lewis, 2015	None

Limaye, 2017	None
Lin, 2017	Assumed total population n=138
Lin, 2018	None
Linde, 2012	None
Lindquist, 1999	None
Mache, 2015	None
Mache, 2015	None
Maes, 1998	None
Mansi, 2015	Table was not labeled. Units were assumed based on standard units used for BMI [Kg/M^2], Body fat [%], SBP [mmHg], DBP [mmHg], Waist circumference [cm], Weight [kg]
Meenan, 2010	None
Miller, 2016	None
Mills, 2007	None
Morgan, 2011	None
Moy, 2008	None
Moy, 2006	None
Olafsdottir, 2012	None
Ostbye, 2015	None
Pedersen, 2018	None
Pegus, 2002	None
Prabhakaran, 2009	None
Peters, 2018	None
Racette, 2009	None
Rameshbabu, 2018	None
Raymond, 2019	Assumed total population n=748
Reynolds, 1997	None
Ribeiro, 2014	None
Robbins, 2006	None
Rowland, 2018	None
Rusali I, 2018	Assumed total population n=70
Rusali II,2018	Assumed total population n=77
Ryu, 2017	Study with 3 arms. In Ryu 1 the extracted arms are group1 (control) and group 2 (intervention).Total population n=524 In Ryu 2 the extracted arms are group1 (control) and group 3 (intervention).Total population n=490
Saleh, 2010	None
Salindari, 2013	None
Scoggins, 2011	None
Sforzo, 2012	None
Shimizu, 2004	None
Shrivastra, 2017	Assumed total population n=267
Siegel, 2010	None
Smith-McLallen, 2017	The loss of follow up was calculated based on the sample of the only outcome extracted (table 3, third follow up)
Song, 2019	Extraction only of the treatment group and primary control Loss of follow up was calculated based on the flow-chart and clinical biometrics (most conservative approach mas used)
Sorensen, 2005	None
Sorensen, 1999	None
Sorensen, 1996	Fibre data reported as g/1000 kcal. Because most results were reported in grams, we assumed a 2000kcal/day diet and multiplied difference by 2 in order to standardize
Sorensen, 1992	None
Steenhuis, 2004	None
Stites, 2014	None
Strijk, 2012	None
Tan, 2016	None
Terry, 2011	None
Thompson, 2014	None
Tucker, 2016	None
van Berkel, 2014	None
Velema, 2018	None
Viester, 2018	The duration of the intervention (6 months) and the duration of follow up (6 months)
Viitasalo, 2015	None
Vilela, 2015	None
Wierenga, 2014	Length of follow-up was reported as between 12 to 15 months. Assumed 12 months was intended length of follow-up and 15-month follow-up was the result of employee scheduling
Williams, 2014	None
Wilson, 2016	None
Wilson 1, 2016	Study with 3 arms. In Wilson 1 the extracted arms were group PHONE (intervention) and group SELF STUDY (control). Total population n=424. In Wilson 2 the extracted arms were group GROUP (intervention) and group SELF STUDY (control). Total population n=478
Zoellner, 2016	Assumed total population n=1460

Table S3. Study assumptions for standard error and effect size calculation

Author, year	Outcome(s)	Assumptions
Addley, 2014	BMI	r= 0.9 between baseline and follow-up samples in intervention and control groups
Agarwal, 2015	T-Cho, total fat, SFA	Dichotomous outcomes
Allen, 2012	Total fat, BMI, weight, WC, SBP, DBP, T-Cho, HDL, LDL, TG, FPG	r = 0.5 between baseline and follow-up samples in intervention and control groups
Almeida, 2015	BMI, fibre, fruits & vegetables	r = 0.5 between baseline and follow-up samples in intervention and control groups
Atlantis, 2006	BMI, weight, WC	None
Balk-Moller, 2017	Weight, body fat, WC, T-Cho SBP, DBP T-Cho	r=0.5 between baseline and follow-up samples in intervention and control groups for weight, body fat, WC, total cholesterol r= 0.9 between baseline and follow-up samples in intervention and control groups for SBP and DBP. Conversion from mmol/L to mg/dL of T--Cho
Bandoni, 2010	Fruits, vegetables	None
Beresford, 2001	Fruits, vegetables	None
Bhiri, 2015	Fruits & vegetables	Dichotomous outcomes. r=0 baseline and follow-up used independent cross-sectional samples
Braeckman, 1999	Total fat, BMI, WHR, T-Cho, HDL, SFA, PUFA	Post-intervention analysis controlled for baseline values as proxy for difference of changes analysis T-Cho & HDL: 95% CI unit = mg/dL
Campbell, 2002	Fruits, vegetables, total fat	r = 0.5 between baseline and follow up samples in intervention and control groups
Carr, 2016		None
Cawley, 2009	Weight	Intervention 1 vs. control: p<0.05 for cumulative weight loss Intervention 2 vs. control: p>0.05 for cumulative weight loss
Chen, 2008	SBP, DBP	SE was calculated from the estimate and p-values provided in the study. It was assumed that the p-values were from a t-test (Follow-up vs Baseline), using 0.05 as a conservative estimate.
Chen, 2014	BMI, DBP, SBP, FPG, HDL, LDL, T-Cho, TG, vegetables, WC, weight	r = 0.5 between baseline and follow-up samples in intervention and control groups .
Chen, 2016	Vegetables, weight, BMI, WC, SBP, DBP, triglycerides, T-Cho, LDL, HDL	The effect size is calculated based on the full length of the study (intervention + follow up = 24 weeks)
Choi, 2017	WC, SBP, DBP, FPG, TG, HDL	r= 0.9 between baseline and follow-up samples of intervention and control group.
Cook, 2011	Total fat, BMI, weight, WC, SBP, DBP	None
Danquah, 2017		None
Doran, 2018		None
Doran, 2018	BMI	The follow-up SD of BMI from the control group was 8.4
Edries, 2013		None
Elliot, 2007	Fruits, vegetables, total fat, BMI, weight	r = 0.9 between baseline and follow-up samples in intervention and control groups
Emmons, 1999	Fruits, vegetables, total fat, fibre	95% CI normally distributed around effect size Difference of changes effect size = control – treatment
Engbers, 2007	BMI, WC, SBP, DBP, T-Cho, HDL, LDL	None
Engbers, 2006	Fruits, vegetables, total fat	None
Eshah, 2010		None
Faghri, 2014	BMI, DBP, SBP, fruits & vegetables, WHR, weight	None
Fernandez, 2015	BMI, % overweight+ obese	None
Fitzgerald 1, 2019	Total fat, SFA, Fibre	r= 0.9 between baseline and follow-up samples of intervention and control group
Fitzgerald 2, 2019	Total fat, SFA,Fibre	r= 0.9 between baseline and follow-up samples of intervention and control group.
Fitzgerald 3, 2019	Total fat, SFA, Fibre	r= 0.9 between baseline and follow-up samples of intervention and control group.
Flannery, 2012	BMI, SBP, DBP, T-Cho, HDL, LDL, TG	r = 0.5 between baseline and follow-up samples in intervention and control groups
French, 2010	Fruits, vegetables, BMI, weight	None
Furuki, 1999	BMI, SBP, DBP, T-Cho, HDL	None
Geaney, 2016		None

Gerstel, 2013	Total fat, BMI, weight, body fat, WC, SBP, DBP, HDL, LDL, TG, FPG	None
Gysan, 2017		None
Glasgow, 1997	Total fat, T-Cho	None
Glasgow, 1995	Total fat, T-Cho	None
Goetzel, 2010	BMI, weight, T-Cho, FPG	Dichotomous outcomes: r = 0.9 between baseline and follow-up samples in intervention and control groups
Gomel, 1997		None
Gomel, 1993		None
Gosliner, 2010	Fruits, vegetables	None
Guldan, 1992		None
Iriyama, 2016		None
Hebert, 1993	SFA, PUFA	None
Hossain 1, 2019		None
Hossain 2, 2019	Weight	r=0.5 between baseline and follow-up samples of intervention and control group.
Hunt, 1993	Fruits, vegetables	None
Hutchinson, 2013	Fruits	r = 0.5 between baseline and follow-up samples in intervention and control groups
Jaime, 2013		None
Jamal, 2016	T-Cho, LDL, HDL, TG, FPG	Assumed the unit of these outcomes is mg/dL
Jeffery, 1993	BMI	None
Johanning, 1996	BMI, weight, SBP, DBP, T-Cho, HDL, LDL, TG	None
Kamioka, 2009	BMI, weight, body fat, WC, T-Cho, HDL, LDL, TG, FPG	r = 0.9 between baseline and follow-up samples in intervention and control groups
Kouwenhoven-Pasmooij, 2018		None
Kuehl, 2014		r = 0.5 between baseline and follow-up samples in intervention and control groups
Kushida, 2014		None
Kwak, 2010	BMI, weight, WC	BMI: 24months data erroneous
Kwak, 2009	BMI	Erroneous data for BMI outcome at 24months
LaCaille, 2016		None
Lassen, 2011	Fruits, vegetables, total fat, fibre, SFA	Fibre: 95% CI = (-1, 4)
Lemon, 2014		None
Lemon, 2010		None
Lewis, 2015		None
Limaye, 2017	FPG, TG, T-Cho, HDL, LDL	Conversion from mmol/L to mg/dL
Lin, 2017	Weight, WC, SBP, DBP, FPG, TG, T-Cho, HDL, LDL,	r= 0.9 between baseline and follow-up samples of intervention and control group
Lin, 2018	Weight, BMI, WC, SBP, DBP, T-Cho, HDL, LDL, TG, FPG	r= 0.9 between baseline and follow-up samples in intervention and control groups
Linde, 2012	BMI	None
Lindquist, 1999	SBP, DBP	r = 0.9 between baseline and follow-up samples in intervention and control groups
Mache, 2015		None
Mache, 2015		None
Maes, 1998		None
Mansi, 2015		None
Meenan, 2010	BMI	p>0.05 for difference in cumulative BMI change between intervention and control groups
Miller, 2016	Vegetables, fruits, PUFA	The outcomes AHEI scores, outcome expectancies and recovery self-efficacy (13 outcomes out of 21) are given as a median and interquartile range. For the measure of variability “other” was selected and the interquartile range was introduce as the 95 CI but the SE could not be calculated.

Mills, 2007		None
Morgan, 2011	Fruits, vegetables, BMI, weight, WC, SBP, DBP	None
Moy, 2008	Total fat, T-Cho, SFA, PUFA, MUFA	None
Moy, 2006	BMI, SBP, DBP, HDL, LDL, triglycerides, FPG	None
Olafsdottir, 2012	BMI, weight, WC, BP, T-Cho, HDL, LDL, TG, FPG	r = 0.9 between baseline and follow-up samples in intervention and control groups Reported measure of variance = SD
Ostbye, 2015		None
Pedersen, 2018	HDL	Conversion from mmol/L to mg/dL
Pegus, 2002		None
Peters, 2018		None
Prabhakaran, 2009	Weight, WC, SBP, DBP, T-Cho, HDL, TG, FPG	None
Racette, 2009	BMI, weight, SBP, DBP, T-Cho, HDL, LDL, TG, FPG	95% CI normally distributed around effect size Dichotomous outcomes: r = 0.9 between baseline and follow-up samples in intervention and control groups
Rameshbabu, 2018	SFA	Assumed it was ITT.
Raymond, 2019	T-Cho, LDL, HDL, TG, BMI, WC	r= 0.9 between baseline and follow-up samples in intervention and control groups Conversion from inches to cm for WC
Reynolds, 1997	Fruits, vegetables, T-Cho	T-Cho: p-value comparing full and partial intervention group changes to control group change (reported) = p-value comparing full intervention group change to control group change
Ribeiro, 2014		None
Robbins, 2006	Weight	p>0.05 for difference in weight change between all intervention subgroups and control group
Rowland, 2018		None
		None
Ryu 1, 2017	WC, SBP, DBP, FPG, TG, HDL	r= 0.9 between baseline and follow-up samples of intervention and control group
Ryu 2, 2017	WC, SBP, DBP, FPG, TG, HDL	r= 0.9 between baseline and follow-up samples of intervention and control group
Rusali I, 2018	T-Cho, LDL, HDL, TG, FPG	Conversion from mmol/L to mg/dL
Rusali II, 2018	T-Cho, LDL, HDL, TG, FPG	Conversion from mmol/L to mg/dL
Salindari, 2013	BMI, weight, SBP, DBP, T-Cho, HDL, LDL, TG, FPG	None
Scoggins, 2011	BMI	p-value for % BMI change = p-value for mean BMI change
Sforzo, 2012	BMI, weight, body fat, WHR, SBP, DBP	r = 0.9 between baseline and follow-up samples in intervention and control groups
Shimizu, 2004	BMI, SBP, DBP, T-Cho, HDL	BMI, SBP, DBP, T-Cho & HDL outcomes in older subgroup: adjusted for baseline differences in age, HDL & T-Cho BMI, SBP, DBP outcomes in younger subgroup: adjusted for baseline differences in DBP
Shrivastra, 2017	Weight, BMI, WC, SBP, DBP, FPG, T-Cho, HDL, LDL, TG	r= 0.9 between baseline and follow-up samples in intervention and control groups
Siegel, 2010	Fruits, vegetables, BMI, WHR	r = 0.5 between baseline and follow-up samples in intervention and control groups
Smith-McLallen, 2017		None
Song, 2019		None
Sorensen, 2005		None
Sorensen, 1999	Fruits, vegetables	None
Sorensen, 1996	Fruits, vegetables, total fat, fibre	No exact sample size was reported but SE was reported
Sorensen, 1992	Total fat, fibre	None
Steenhuis, 2004	Fruits, vegetables, total fat	r = 0.9 between baseline and follow-up samples in intervention and control groups
Stites, 2014		None
Strijk, 2012	Fruits	None
Tan, 2016		None
Terry, 2011		None

Thompson, 2014		None
Tucker, 2016		None
van Berkel, 2014	Fruits	None
Velema, 2018		None
Viitasalo, 2015		None
Vilela, 2015		None
Viester, 2018	Vegetables and Fruits	Conversion from servings/week to servings/day from fruits and vegetables
Wierenga, 2014		None
Williams, 2014		None
Wilson, 2016		None
Wilson 1, 2016	Weight	Conversion from pounds to kg
Wilson 2, 2016	Weight	Conversion from pounds to kg
Zoellner, 2016	Weight	r= 0.9 between baseline and follow-up samples of intervention and control group

BMI=body mass index; WC=waist circumference; WHR=waist-to-hip ratio; SBP=systolic blood pressure; DBP=diastolic blood pressure; T-Cho=total cholesterol; TG= triglycerides; LDL=low-density lipoprotein; HDL=high-density lipoprotein; FPG=fasting plasma glucose; PUFA=polyunsaturated fatty acids; SFA=saturated fatty acids

Section 3. Results

Table S4. Summary of intervention studies on Worksites Wellness programs

Author, year	Geographic Location	Design	Population	Intervention¶	Intervention Duration (months)	Outcome(s)	Estimated Drop Out Rate (%)	Quality Score (0-low, 5-high)
Addley, 2014[1]	Ireland	RCT	• 180 employees • Northern Ireland Civil Service employees	Nurse-led assessments of lifestyle and physical activity, website access to an online personal trainer with monitoring and motivational tools tailored to the individual participant.	12	BMI	27.0	4
Agarwal, 2015[2]	USA	RCT	• 292 employees • 10 GEICO corporate offices	Education on a low-fat vegan diet with weekly group meetings and group support.	4.5	Not available††	27.4	3
Allen, 2012[3]	USA	RCT	• 60 employees • University of New Hampshire Cooperative Extension	Lifestyle education sessions on CHD risk, diabetes and hypertension, sampling of foods, pedometers.	10*	Total fat, BMI, weight, WC, SBP, DBP, T-Cho, HDL, LDL, TG, FPG	8.3	4
Almeida, 2015[4]	USA	RCT	• 1790 employees • 28 mixed worksites in Virginia	Daily tailored emails, monetary incentives, comprehensive web-based support.	12	BMI, fibre, fruits & vegetables, weight	11.7	5
Atlantis, 2006[5]	Australia	RCT	• 73 healthy, sedentary employees • Casino	Aerobic exercise and whole-body weight training recommendations, general health education via group seminars, one-on-one counselling and worksite manual, goal setting, nonmonetary prizes.	6	BMI, weight, WC	42.5	5
Balk-Moller, 2017[6]	Denmark	RCT	• 566 employees from 20 nursing homes in 6 municipalities in Denmark	Web- and app-based tool (SoSo-life) with basic features on self-reporting of diet and exercise, personalized feedback, suggestions for activities and programs, and practical tips and tricks; social features on weekly assignments and colleague challenges; pledge; team competition; prize from a lottery ticket earned by team points. Comparison group: underwent through the same health examinations as the intervention group, which provided information about the sand-alone effect of such health examinations.	4*	Weight, body fat %, WC, SBP, DBP, T-Cho	35.5	4
Bandoni, 2010[7]	São Paulo, Brazil	RCT	• 1,296 employees • 30 companies offering subsidized meals during the workday	Educational materials on fruit and vegetable consumption (flip charts, posters), point of choice food labelling information.	6	Fruits, vegetables	N/A‡	3
Beresford, 2001[8]	Seattle, USA	RCT	• 2,828 employees • 28 mixed companies	Employee advisory board, nutrition promotion (posters, brochures, table tents, paycheck inserts, flyers, newsletters, food demonstrations, messages cards, tip sheets, self-help manual), point-of-purchase displays, food labelling.	24	Fruits, vegetables	40.7†	5
Bhiri, 2015[9]	Tunisia	QE	• 1775 employees • 6 companies in Sousse	Education sessions and films, healthy diet and smoking cessation workshops, free physical activity sessions, free cessation consultations, and smoking bans.	36	Fruits &vegetables	NA	1
Braeckman, 1999[10]	Belgium	RCT	• 770 male, blue-collar employees • 4 worksites	Group education program on nutrition, personal counselling, risk factor screening and feedback, mass media on cholesterol and heart disease (posters, leaflets, video, newsletter) Control intervention: risk factor screening results.	3	Total fat, BMI, WHR, T-Cho, HDL, SFA, PUFA	17.1	4

Campbell, 2002[11]	North Carolina, USA	RCT	• 859 female employees • 9 textile, apparel or light manufacturing worksites	"Health Works for Women;" two individualized computer-tailored women's health magazines that provided feedback, strategies for change and community resource information, selected natural helpers to obtain group health education, share information in the workplace, start walking groups and promote healthy vending machine choice. Control intervention: one computer-tailored magazine	18	Fruits, vegetables, total fat	37.4	4
Carr, 2016[12]	USA	RCT	• 60 office employees • 1 large private company	Access to portable seated elliptical machine placed underneath the desk, an iPod Touch with an application to view their daily pedalling progress, and a pedalling goal sheet to encourage the participants in addition to the intervention of the control group. Comparison group: received 30-minute face-to-face consultation aimed at optimising each employee's computer workstation ergonomics. Participants were provided with tips for optimizing their workstation and workstation adjustments were implemented if needed. Also, participants were encouraged to shift posture regular and take breaks from sitting. They also received three weekly e-mails promoting posture, regular breaks from sitting, self -efficacy for physical activity, small changes to the work environment and tips for reducing stress.	4	Not available[††]	10	3
Cawley, 2009[13]	USA	QE	• 2407 employees • 7 employers: HMO clinic, HMO office, two banking offices, two insurance offices, grocery store administrative office	Intervention I: Daily email coaching on weight loss, call-centre support, weigh-ins, financial incentives for weight loss including no fee and quarterly payments determined by % weight loss. Intervention II: Daily email coaching on weight loss, call-centre support, weigh-ins, financial incentives for weight including lottery and refunded payments for employees losing weight Control Intervention: Daily email coaching on weight loss, call-centre support.	12	Weight	68.8	2
Chen, 2008[14]	China	QE	• Capital Steel and Iron Company[§]	Health network setup, health education and promotion with emphasis on diet, health professional training for local practitioners and health workers, detecting and management of hypertension patients, disease and death surveillance, the building of healthier environment.	108	SBP, DBP	Not reported	1
Chen, 2014[15]	Taiwan	QE	• 108 employees • 3 worksites	Intervention varied from site to site and was not strictly enforced. Components may include lectures, workshops on healthy living, small biweekly group meetings, food and exercise logs, team challenges.	6	BMI, DBP, SBP, HDL, LDL, T-Cho, TG, vegetables, WC, weight	8.3	2
Choi, 2017[16]	Korea	RCT	• 68 office workers • Health center of a government office building in Korea	60-min sessions of t'ai chi exercise twice a week, text messages to encourage participants to practice t'ai chi at home. Heath education on metabolic syndrome, modifiable and nonmodifiable risk factors, exercise and lifestyle, healthy diet, smoking cessation and stress management. Comparison group: received health education only and were offered to participate in t'ai chi classes after the study was completed.	3	WC, SBP, DBP, FPG, TG, HDL	63	3
Cook, 2011[17]	South Auckland, New Zealand	QE	• 253 male, hourly-paid employees • 2 manufacturing worksites	Employee advisory board, workshop sessions on nutrition and non-communicable disease risk, safe use of alcohol and benefits of physical activity, nutrition displays in the cafeteria, point-of-choice messages.	6	Total fat, BMI, weight, WC, SBP, DBP	5.9	3
Danquah, 2017[18]	Denmark and Greenland	RCT	• 317 office workers • 4 workplaces	Appointment of ambassadors and management support for common goals, environmental changes such as routes for walking meetings, lecture of sedentary behaviour and health. Workshops about the sit-stand desk, walking meetings, setting individual and common goals, and weekly emails and twice a week text messages including strategies from the workshop.	3	WC, body fat %, lean mass	28	4

Doran, 2018[19]	East coast, USA	RCT	• 98 care workers • 4 long-term care facilities including multiple types of long-term care units, such as nursing homes, assistant living, independent living facilities, and dementia care units	Environment and policy assessment with support for recommended changes, education, motivation and active engagement, technology-enhanced motivation, booster and long-term adherence. Comparison group: health education.	9	Not available[††]	46.9	4
Doran, 2018[20]	USA	RCT	• 98 hospital employees • 4 long-term care facilities in a metropolitan area of one East coast state	The intervention was based on the theory of self-efficacy which included the following components: Environment and policy assessment with support for recommended changes, education, motivation and active engagement, technology-enhanced motivation, booster and long-term adherence. Comparison group: health education.	9	SBP, DPB, BMI, T-Cho	46.9	4
Edries, 2013[21]	Cape Town, South Africa	RCT	• 80 employees • 3 clothing manufacturing companies	Group health promotion sessions on pain, back care, chronic disease of lifestyle, goal setting and pacing, physical activity, nutrition and relaxation, exercise classes, goal setting, health promotion pamphlets. Control intervention: one group health promotion session and health promotion pamphlet.	1.5	Not available[††]	0	4
Elliot, 2007[22]	Oregon, USA	RCT	• 599 firefighters • 5 fire departments	Intervention I: education sessions on nutrition, physical activity and energy balance, workbooks, team member tracking grid, self-assessment of baseline results, goal setting, health and fitness guide. Intervention II: one-on-one motivational interviewing inclusive of health assessment review, goal setting and behaviour change planning, health and fitness guide. Control intervention: self-assessment of baseline results.	12	Fruits, vegetables, total fat, BMI, weight	19.9	5
Emmons, 1999[23]	Rhode Island and Southeastern Massachusett, USA	RCT	• 5414 employees • 26 manufacturing worksites	Employee advisory board, self-assessment and feedback on smoking, nutrition and physical activity, posters, brochures, newsletters, self-help and self-skills management programs, cook-offs, poster contest, fitness challenges, incentives to participate, group education classes, restrictive smoking policy and the penalty for not adhering to smoking policy, food labelling in cafeterias and vending machines, healthy food at company meetings and events, allocation of space to exercise equipment, purchase of new exercise equipment and training sessions on using new equipment, measured distance lines on worksites to promote lunch-time walking, individual-level exercise-related interventions. Control intervention: self-help programs on smoking, nutrition and physical activity.	30	Fruits, vegetables, total fat, fibre	62.0	4
Engbers, 2007[24]	Netherlands	QE	• 540 slightly overweight (BMI $\geq$ 23 kg/m^2) office workers • 2 government companies	Informational sheets in close vicinity to food products in worksite canteen, informational sheets on the vending machine, brochures and leaflets on healthy lifestyle, healthy food buffet, point-of-decision prompts on elevator doors at ground floor to promote stair use, footsteps printed on the floor leading from building entrances to staircases, placement of motivational texts and exercise-related facts in windows between floors, placement of slim-making big mirrors on every other floor in the staircases.	12	BMI, WC, SBP, DBP, T-Cho, HDL, LDL,	16.3	3
Engbers, 2006[25]	Netherlands	QE	• 515 office workers with BMI $\leq$ 23 kg/m^2 • 2 government companies	Same as Engbers, 2007.	12	Fruits, vegetables, total fat	16.1	3
Eshah, 2010[26]	Jordan	RCT	• 123 school teachers • 6 secondary schools	Group education, individual counselling and behavioural counselling on health responsibility, physical activity, nutrition, spiritual growth, interpersonal relationships and stress management, healthy lifestyle pamphlet.	0.5*	Not available[††]	13.8	3

Faghri, 2014[27]	USA	RCT	• 19 employees • Two long term care nursing facilities	Intervention I: individual weight loss consultation, food and exercise logs, weekly weight goals with financial incentives for meeting goals. Intervention II: individual weight loss consultation, food and exercise logs, weekly weight goals.	4	BMI, DBP, SBP, WHR, weight	Not reported	3
Fernandez, 2015[28]	Northeastern USA	RCT	• 2615 employees • 10 manufacturing, research, and development companies	Employee advisory board, awareness workshops and brochures on nutrition and physical activity, newsletters, wellness books, nutrition promotion signs, taste tests, point-of-choice labelling on vending machines, free healthy foods, the inclusion of healthy foods options in vending machines, chef training workshops on healthy meal preparation, a price reduction of healthy foods in cafeterias and vending machines, website with wellness information, walking route maps, a member's forum and a chat session with a dietician, bioimpedance scale for self-monitoring, health and wellness fairs on diet and nutrition, obesity, stress, cardiovascular disease, smoking risks and physical activity, free gym membership, improved fitness facilities, treadmill and elliptical machines, orientations at worksite gyms, mapping of indoor and outdoor walking routes, outdoor power walks, signs promoting stairway use, team fitness competitions, pedometers, farmer's markets.	36	BMI	N/A‡	4
Fitzgerald, 2019[29]	Cork, Ireland	RCT	• 850 employees across four large multinational workplaces	4-arm intervention, including control, education, environment and a combined arm. Education arm comprised three components: detailed nutrition information, such as daily calorie and traffic light menu labelling, posters, leaflets and emails; individual nutrition counselling; and monthly group presentations. Environment arm comprised five components: menu modification (restriction of fat, saturated fat, sugar and salt); increase in fibre, fruit and vegetables; price discounts for whole fresh fruits; strategic positioning of healthier alternative; and portion size control. Combined armed include previous components from the education and environmental arms.	9	Fibre	38.9	3
Flannery, 2012[30]	Maryland, USA	RCT	• 39 female minority nursing assistants • 2 long-term care facilities	Group education session on physical activity and diet, self-efficacy group discussions, competitions, daily health tips, nurse resource for physical activity and diet questions, food label reading practice, individualized recipe/cooking instruction, taste tests, physical activity breaks, group exercise classes, goal setting, pedometers, individualized progress reports, nonmonetary incentives for winning competitions and meeting program goals, intervention website, free gym membership, training of peer leaders. Control intervention: group education session on physical activity and diet.	3*	BMI, SBP, DBP, T-Cho, HDL, LDL, TG	28.2	4
French, 2010[31]	Minneapolis, USA	RCT	• 1063 transit workers • 4 garages	Garage advisory board increased availability and lowered the price of healthful foods and beverages in vending machines, food labelling in vending machines, improved worksite fitness facilities, weight loss contest with incentive prizes, team walking competitions, fruit and vegetable intake challenges, fitness classes with individualized instruction, 1-Day promotional health and fitness exposition, farmer's markets held at worksites, peer-mentoring program.	18	Fruits, vegetables, BMI, weight	N/A‡	3
Furuki, 1999[32]	Northern Kyoto Prefecture, Japan	QE	• 1014 employees • Automobile parts manufacturer	Health checkups, health guidance, physical exercise clubs.	48	BMI, SBP, DBP, T-Cho, HDL	Not reported	1
Geaney, 2016[33]	Ireland	RCT	• 850 employees • 4 manufacturing worksites in Ireland	Intervention I: Group nutrition presentations, individual consultations, and detailed nutrition information. Intervention II: Group nutrition presentations, individual consultations, detailed nutrition information, environmental modifications including menu modification in	7 to 9	BMI, DBP, SBP, fibre, total fat, WC, weight	30.7	3

				the cafeteria, discounted prices on fruit, strategic positioning of healthier options, and portion size control. Intervention III: Environmental modifications including menu modification in the cafeteria, discounted prices on fruit, strategic positioning of healthier options, and portion size control.				
Gerstel, 2013[34]	Geneva, Switzerland	QE	• 173 home-care providers • State-funded home-care nursing facility	Free bicycles provided to home-care providers to encourage active transportation to patients' homes, cognitive behavioural education program on physical exercise and nutrition.	12	Total fat, BMI, weight, body fat %, WC, SBP, DBP, HDL, LDL, TG, FPG	26.6	3
Glasgow, 1997[35]	Oregon, USA	QE	• 2502 employees • 22 manufacturing/sales or government worksites	The employee steering committee, nonmonetary participation incentives (coffee mugs, water bottles, lunch bags, T-shirts, hats, key chains), carbon monoxide feedback for smokers, weight-loss contests, self-help behaviour change materials, taste tests, food label reading demonstrations, smoking/cholesterol education, vending machine and cafeteria menu changes, networking to community organizations, review of worksite tobacco use policies.	19*	Total fat, T-Cho	57.4†	3
Glasgow, 1995[36]	Oregon, USA	RCT	• 2791 employees • 26 manufacturing/sales or government worksites	Same as Glasgow, 1997.	19*	Total fat, T-Cho	56.2†	4
Goetzel, 2010[37]	Texas, Louisiana, West Virginia, New Jersey, USA	QE	• 3504 employees • 12 Dow Chemical Company worksites	Intervention I: High-intensity intervention: moderate-intensity intervention + management training on health-related topics, additionally of health objectives to management goals. Intervention II: Moderate intensity intervention: environmental prompts and point-of-choice messages in front of stairwells, vending machines and cafeterias encouraging physical activity and healthy food choices, modifications to vending machine items and cafeteria menus, creation and marking of walking pathways, online weight tracking program, pedometers, wellness ambassadors, employee recognition program, health promotion and risk education program. Control intervention: health promotion and risk education program.	24	BMI, weight, SBP, DBP, T-Cho, FPG	56.6	3
Gomel, 1997[38]	Sydney, Australia	RCT	• 431 employees • 28 ambulance stations	Intervention 1: CVD risk factor screening and feedback, risk factor education. Intervention 2: Intervention 1 + behavioural counselling sessions, self-instruction lifestyle change manual. Intervention 3: Intervention 2 + goal setting, financial incentives for healthy lifestyle changes. Control intervention: CVD risk factor screening and feedback.	6*	Not available††	16.0	5
Gomel, 1993[39]		RCT	• Same as Gomel, 1997	Same as Gomel, 1997.	6*	Not available††	16.0	5
Gosliner, 2010[40]	Contra Costa County, California, USA	QE	• 124 employees • 13 childcare centers	Wellness training focused on nutrition and physical activity, individual health consultations, monthly newsletters, paycheck stuffers, walking program.	10	Fruits, vegetables	33.9	3
Guldan, 1992[41]	Chengdu, Sichuan, China	QE	• 236 employees • 2 divisions of a steel tube factory	Nutrition education classes, Chinese dietary guidelines handout.	1.25*	Not available††	N/A‡	2
Gysan, 2017[42]	Cologne, Germany	RCT	• 447 employees • Ford Company	Multimodal outpatient intervention program developed, implemented and supervised by the heath care specialists. The program promoted healthy lifestyle patterns in subjects at high cardiovascular risk given in small groups twice a week. Comparison group: received the usual care from their general practitioners.	3*	Weight, BMI, SBP, DBP, T-Cho, LDL	23	4

Hebert, 1993[43]	Rhode Island and central Massachusetts, USA	RCT	• 3076 employees • 16 life insurance sales, health care delivery, computer manufacturing and sales, wholesale food sales, telecommunications, construction and manufacturing worksites[43]	Employee advisory board, diet education classes, dietary self-assessment, diet and physical activity monitoring, diet and physical activity goal-setting, weight management course, cancer risk factor presentation, cholesterol screening, counselling and referrals, educational materials for healthful meal preparation, taste tests, nonmonetary incentives, healthier cafeteria food choices, cafeteria point-of-choice labelling, eating pattern guidelines.	15	SFA, PUFA	42.7	5
Hossain, 2019[44]	Bangladesh	RCT	• 1310 Female employees • 4 factories from Readymade garment (RMG)	4 arms study Group A intervention: Factory provided lunch meals enhanced with micronutrient fortified rice, and animal sources foods, iron and folic acid supplements once a week, behaviour change communication activities including anaemia, nutrition and dietary diversity, infant and young child nutrition + breastfeeding. Group B control: factory provided usual lunch, behaviour change communication activities included eating healthy, maternal health, reproductive health and family planning, sexually transmitted infections, Malaria and Dengue, personal hygiene, serious illness reproductive cancer, Waterborne disease, and menstruation. Group C intervention: iron and folic acid supplements twice a week and behaviour change communication activities including anaemia, nutrition and dietary diversity, infant and young child nutrition + breastfeeding. Group D control: behaviour change communication activities included eating healthy, maternal health, reproductive health and family planning, sexually transmitted infections, Malaria and Dengue, personal hygiene, serious illness reproductive cancer, Waterborne disease, and menstruation	10	weight	3.1*****	2
Hunt, 1993[45]	Rhode Island and central Massachusetts, USA	RCT	• 2365 employees • 16 life insurance sales, health care delivery, computer manufacturing and sales, wholesale food sales, telecommunications, construction, and manufacturing worksites	Employee advisory board, nutrition and weight management programs inclusive of group discussions and goal setting, American Cancer Society presentation, point-of-purchase labelling in cafeterias, cholesterol screening and education, taste tests, food demonstrations, summer barbecue, education materials.	15	Fruits, vegetables	26.0	4
Hutchinson, 2013[46]	Australia	RCT	• 55 employees • 3 worksites of a utility company	Delivery of free fruit to the workplace every morning, encouragement by peer educators to consume fruit.	1	Fruits	43.6	2
Iriyama, 2016[47]	Japan	RCT	• 57 employees • 5 worksites, Niigata	Group nutrition and exercise education, individual nutrition counselling, goal setting, healthy menus in worksite cafeteria, weekly nutrition messaging in the cafeteria.	6	BMI, WC, weight	17.7	4
Jaime, 2014[48]	Brazil	RCT	• 281 employees • 4 companies, Sao Paulo	Interactive software for self-monitoring of weight and automated emails.	12	BMI, WC, weight	61.0	4
Jamal, 2016[49]	Kuala Lumpur, Malaysia	RCT	• 194 employees • Public University in Kuala Lumpur	Group support lifestyle modification program (GSLiM) that included bi-weekly seminar sessions of diet and healthy eating, physical activity to enhance weight loss and a healthy lifestyle. Comparison group: was given individual dietary counselling for 1 hour once in 12 weeks.	6*	Weight, BMI, WC, SBP, DBP, TG, T-Cho, HDL, LDL, FPG, total fat	22	4
Jeffery, 1993[50]	Minneapolis/ St. Paul metropolitan	RCT	• 5888 employees • 32 insurance, primary health care, financial services,	Weight loss and smoking cessation classes, goal setting, financial incentives for weight loss and smoking cessation.	24	BMI	Not reported	3

	area, Minnesota, USA		manufacturing, education, electronic assembly, bulk mail distribution, research and development, and government worksites					
Johanning, 1996[51]	Germany	QE	• 125 transit operators • Munich Metropolitan System (MVV)	Diet counselling, group physical activity, back school, education on relaxation techniques and conflict management.	12	BMI, weight, SBP, DBP, T-Cho, HDL, LDL, TG	21.6	4
Kamioka, 2009[52]	Unnan, Shimane Prefecture, Japan	RCT	• 43 male, white-collar employees • Municipal office	Lectures on lifestyle, diet and physical exercise, exercise sessions, hot spa bathing, newsletters on eating, sleeping, exercising and bathing, individualized programs with targets set by participants, instructions on daily living. Control intervention: general health guidance.	6*	BMI, weight, body fat %, WC, T-Cho, HDL, LDL, TG, FPG	0	4
Kouwenhoven-Pasmooij, 2018[53]	Netherlands	RCT	• 491 participants • 18 organizational units within three large organizations: military, police, academic hospital	Seven individual coaching sessions with an occupational health physician, personalized suggestions for health promotion based on their Health Risk Assessment, and motivational paragraph in the newsletter. Comparison group: A web-based Health Risk Assessment and personalized feedback and an electronic newsletter providing information on heathy lifestyle.	12	BMI, weight	34	4
Kuehl, 2014[54]	Oregon/ southwest Washington, USA	RCT	• 408 employees • 1 police and 2 sheriff's departments	Teams with a designated team leader, 12-week team lead curriculum with activities about healthy eating, exercise, body weight, stress, sleep deprivation, and other lifestyle factors. Emphasis on team social support, team check-ins and weekly goals.	3*	Fruits, fruits & vegetables, vegetables, total fat	13.7	4
Kushida, 2014[55]	Japan	QE	• 349 employees • 16 worksites, Niigata	Informational table tents in worksite cafeterias, posters in cafeterias promoting local foods, personalized feedback at one month after baseline.	6	Vegetables	17.5	3
Kwak, 2010[56]	Netherlands	QE	• 553 employees • 12 worksites: two hospitals, two local governments, 5 factories, energy supplying company, water-supplying company, university	Expert monitoring and evaluation of body composition measures, pedometers, waist circumference measuring tapes, calorie guide, physical activity and food intake diaries, a log of steps walked, program website with personalized advice on weight maintenance, CD-ROMs on weight status and energy balance-related behaviours, employee advisory board, changes to the assortment of cafeteria foods, workshops, information wall on food intake and physical activity, posters and prompts stimulating stair use, lunch-walking and cycling groups.	24**	BMI, weight, WC	27.7	3
Kwak, 2009[57]	Netherlands	QE	• 489 employees • 12 worksites: two hospitals, two local governments, 5 factories, energy supplying company, water-supplying company, university	Same as Kwak, 2010.	24	Not available[††]	41.7	3
LaCaille, 2016[58]	USA	QE	• 524 employees • 6 primary care clinics and 1 hospital in Midwest	Traffic light labelling in cafeterias, serving size changes, reduced pricing for smaller portions, making healthy food more visible, pedometer, environmental signage encouraging stair use, etc., training trained influential employees to promote healthy behaviours with their colleagues.	12	BMI, fibre, fruits & vegetables, total fat, WC, weight	33.1	3
Lassen, 2011[59]	Denmark	RCT	• 206 employees • 8 worksites: four production units, two zoological gardens, two transport companies	Employee advisory group, healthy cafeteria choices, reduced soda and candy sales, free fruit, free cold water, healthy lunchtime clubs, food workshops, taste demonstrations, nutrition quizzes, dinner mats, computer-based activities, leaflets, news magazine, network and education opportunities for cafeteria staff. Control Intervention: magazine, free fruit.	6	Fruits, vegetables, total fat, fibre, SFA	18.4	4

Lemon, 2014[60]	Central Massachusetts, USA	RCT	• 782 employees • 12 public high schools	Employee advisory group, healthy lunch options, elimination of sugar-sweetened beverages in faculty lounges, point-of-purchase nutritional information in cafeterias, healthy potluck lunches and breakfasts, access to onsite fitness facilities and locker rooms, walking groups, physical activity campaigns and challenges, group fitness classes, staff basketball games, health promotion displays, healthy food tastings, weight loss and weight maintenance challenges, self-weighing programs, employee resource book and other educational materials on healthy eating, physical activity and weight management, healthy recipes, walking maps, newsletters, project website. Comparison group: employee resource book and other educational materials on healthy eating, physical activity and weight management, healthy recipes, walking maps, newsletters, project website.	24	BMI, weight	18.2	4
Lemon, 2010[61]	Central Massachusetts, USA	RCT	• 806 employees • 6 hospitals	Employee advisory committee, a social marketing campaign with newsletters, displays, program website and information centre with print materials, stairway signs to promote use, walking routes and maps, walking groups, workshops on strength training, cafeteria signs promoting healthy eating, food labelling, healthy cafeteria menu options, farmers' markets, recipe books, campaigns and challenges with prizes for physical activity, healthy eating and weight maintenance.	24	BMI	19.6	4
Limaye, 2017[62]	Pune, India	RCT	• 265 employees with ≥ 3 risk factors (family history of CMD, overweight/obesity, high BP, TG, LDL, TC, low HDL, IFG) • 2 multinational IT industries	Information on lifestyle modification through mobile phone messages and emails, infographics, additional support through the website and a Facebook page (closed group). All participants including the control group attended a 1-hour group session on lifestyle modification.	12	Weight, BMI, WC, SBP, DBP, FPG, TG, T-Cho, LDL, HDL	23.3	3
Lin, 2017[63]	Taiwan, China	QE	• 101 employees • 2 office worksites	Monthly newsletters about the benefits of physical activity, health risks of sitting and recommendations on physical activity, and health, motivation tools, pedometer challenges, environmental prompts, and walking routes. Comparison group: received monthly newsletters.	3	Weight, WC, SBP, DBP, FPG, TG, T-Cho, HDL, LDL	2	3
Lin, 2018[64]	Taiwan, China	QE	• 904 employees with BMI ≥ 26 • 14 factories in semiconductor industry	Exercise arm: 10,000 paces per day recorded by a pedometer. Diet-plus-exercise arm: in addition to 10,000 paces per day, diet logs and face-to-face counselling biweekly by a nutritionist.	3	Body weight, BMI, WC, SBP, DBP, T-Cho, HDL, LDL, TG, FPG	NA	1
Linde, 2012[65]	Twin Cities metropolitan area, Minnesota, USA	RCT	• 1747 employees • 6 worksites: two community colleges, regional insurance office, beauty industry corporate headquarters, utility company home office, national headquarters for a health-related nonprofit organization	Increased availability of calorie smart foods and smaller portion sizes in cafeterias and vending machines, a reduced price of calorie smart food, increased price of non-calorie smart food, point-of-choice labelling, table tents, posters, group walks, walking challenges, activity monitoring, pedometers, motivational signs and music in stairwells to promote use, balance beam scales, BMI charts, weight tracking forms, weight maintenance competitions, newsletters, employee advisory panel.	24	BMI	24.3	4
Lindquist, 1999[66]	Australia	RCT	• 104 employees with identified stress-related symptoms • Government tax office	Workshops on stress, healthy lifestyle and stress-coping skills, handouts on workshop topics, homework booklet with assignments, recommended reading list, individual counselling with feedback on baseline stress assessment, personalized action plan, phone calls to encourage action plan maintenance.	2	SBP, DBP	0	3
Mache, 2015[67,68]****	Germany	QE	• 3095 employees • Two worksites	Group health promotion education, individual coaching on nutrition and physical activity, cooking lessons, goal setting, free fruits and vegetables during education sessions, onsite exercise.	12	BMI, weight	61.4	2

Maes, 1998[69]	Netherlands	RCT	• 346 employees • 3 Brabantia manufacturing worksites	Reorganization of the production line to address worksite wellness risks, physical exercise sessions, health education sessions on nutrition, alcohol and drug consumption, working conditions, stress, smoking behaviour, headaches and back pain, employee groups for smoking, headaches and back pain, employee advisory committee, health fair, health exhibition, creation of on-site exercise facilities, cafeteria smoking policy, program advertising via cafeteria information corner, posters, videos, radio messages and newsletters, free healthy food, cafeteria food labelling , social skills and leadership training for management.	36	Not available††	23.7	4
Mansi, 2015[70]	New Zealand	RCT	• 58 employees • Meat processing facility	Group education on physical activity, individual physical activity assessment, pedometer challenges, goal setting, and exercise log.	3	BMI, body fat %, DBP, SBP, WC, weight	8.6	4
Meenan, 2010[71]	Oahu, Hawaii, USA	RCT	• 6958 employees • 30 hotels	Weight management groups consisting of goal setting, monitoring of food intake, calories and physical activity, decision training, physical activity sessions, physical activity promotion, dietary education and peer support, additional weight management groups for overweight and obese employees, monthly newsletters, electronic sign messages, healthier cafeteria food options, labelling of healthy cafeteria foods, wellness-themed contests, promotion of stair use, feedback on BMI assessment and lifestyle choices, flyers on good health habits. Control intervention: feedback on BMI assessment and lifestyle choices, flyers on good health habits.	24	BMI	Not reported	3
Miller, 2016[72]	USA	RCT	• 68 employees • University worksite	Weekly 60 minutes group sessions were facilitated by a lifestyle coach in which participants received a written, annual, food and physical activity trackers, a graph for tracking weekly weights, a booklet with nutrient content. Participants were encouraged to record calories and fat grams consumed and minutes spent in physical activity The 8 sessions contain information about, modifying energy and fat intake, increasing energy expenditure, achieving lifestyle goals; relapse prevention and motivational factors for sustain behavioural change. Control group: received an information booklet regarding lifestyle changes for diabetes prevention.	4*	Not available††	12.8	5
Mills, 2007[73]	United Kingdom	QE	• 2198 office workers • Intervention participants from 3 business units of Unilever PLC: a multinational manufacturer of food, home care and personal care products; control participants from other service delivery corporations	Personalized health and well-being report, personalized health, well-being and lifestyle web-portal with articles, assessments and interactive online behaviour-change programs, tailored emails on personal wellness topics, newsletters and health promotion literature on stress management, sleep improvement, nutritional balance and physical activity, seminars on wellness issues.	12	Not available††	31.4	3
Morgan, 2011[74]	Tomago, Australia	RCT	• 110 obese/overweight (BMI 25-40 kg/m^2), male employees • Tomago Aluminum	Information session on energy balance, diet and physical activity challenges of shift work and behaviour change strategies, weight loss website inclusive of eating and exercise diaries and weight tracking, individualized dietary feedback and advice emails, weight loss handbook, pedometers, group-based financial incentive for weight loss.	3*	Fruits, vegetables, BMI, weight, WC, SBP, DBP	19.0	4
Moy, 2008[75]	Kuala Lumpur, Malaysia	QE	• 186 Malay-Muslim, male security guards • Public university and its teaching hospital	One-to-one counselling on nutrition, physical activity and CVD risk factors based on health check results, group counselling on smoking cessation, physical activity and stress management, focus group discussions, individualized brochures, self-monitoring booklets, modified recipes, quizzes and small gifts for quiz winners, microwave oven, water cooler and weighing scale placed in office.	24	Total fat, T-Cho, SFA, PUFA	19.4	2

				Control intervention: feedback on health check results, healthy lifestyle brochures, group sessions.				
Moy, 2006[76]	Kuala Lumpur, Malaysia	QE	• Same as Moy, 2008	Same as Moy, 2008	24	BMI, SBP, DBP, HDL, LDL,TG, FPG	19.4	2
Olafsdottir, 2012[77]	Iceland	QE	• 61 fishermen • 7 fish-processing trawlers of one fish company	Health specialists were available for advice, encouragement, information and recommendations about physical activity and diet, fitness equipment, healthy meal choices during fishing trips.	6	BMI, weight, WC BP, T-Cho, HDL, LDL, TG, FPG	0 6.6	2
Ostbye, 2015[78]	USA	RCT	• 550 employees • Duke University employees	Individual counselling with a health coach, frequent health messaging delivered via email or postal mail, optional meetings with a registered dietitian or personal trainer.	12	BMI, fruits & vegetables, total fat	20.7	5
Pedersen, 2018[79]	Norway	RCT	• 202 employees • 6 worksite locations of the Norwegian Post-delivery mail and logistic services.	The intervention group 6 worksites sessions of group-based intervention elements: two workshops and four physical activity support group meetings. The intervention consisted of three sources of need support: co-workers, a health and exercise advisors and a booklet consisting of reflection tasks. Control group: were encouraged to follow the recommendations they received during the individual health screening.	5	WC, LDL, DBP, SBP	22.3	4
Pegus, 2002[80]	Southeastern USA	QE	• 633 employees • 2 manufacturing sites	Onsite nurse available for CVD risk factor screening feedback, education, flyers and posters focused on diet, physical activity and CVD risk factors, email messages, walking group, construction of the walking track, low-fat lunch options, healthy vending machine options, smoking counselling, incentives for participation (T-shirts, bags, apples).	12	Not available††	Not reported	1
Peters, 2018[81]	Boston metropolitan area, Massachusetts, USA	RCT	• 10 (five matched pairs) commercial construction sites	2 main intervention components: (1) the soft tissue injury prevention program including worksite inspections and feedback, task pre-planning checklists, supervisor training and worker training consisting of an " Ergonomics Toolbox Talk", and (2) a health weak including health educations through toolbox talks, one-on-one discussions on health (behaviours), free web-based and phone-based health coaching, and for smokers nicotine replacement therapy with two-week supply free of charge.	2*	Not available††	80.6	3
Prabhakaran, 2009[82]	India	QE	• 5828 employees • 7 industrial sites	Direct one-to-one interactions between trained health project personnel and employees and their families, posters, banners, handouts, booklets and film videos focused on healthy eating, physical activity, tobacco use and body weight, group interactions, healthy displays, motivational sessions, banned use of tobacco and its products onsite, modified cafeteria menus to include salads and fruit desserts and reduce fried items and items high in salt, referrals of participants with CVD risk factors to health care facilities, individual and group counselling sessions on diet, physical activity and tobacco use for high-risk participants. Control intervention: referrals of participants with CVD risk factors to the industry-managed clinic, HIV/AIDS awareness program, banned tobacco onsite.	48	Weight, WC, SBP, DBP, T-Cho, HDL, TG, FPG	60.0†	4
Racette, 2009[83]	St. Louis, Missouri, USA	RCT	• 151 employees • 2 medical center worksites	Employee advisory committee, individualized health assessment results, pedometers, healthy snack cart, Weight Watcher group meetings, group exercise program, lunchtime seminars, newsletters, walking maps, team competitions, participation cards and rewards, registered dietician/exercise specialist available for individual health questions. Control intervention: individualized health assessment results.	12	BMI, weight, SBP, DBP, T-Cho, HDL, TG, FPG	18.5	3
Rameshbabu, 2018[84]	USA	RCT	• 54 janitorial employees	A saturated fats information booklet, provision of a food diary allowing daily for daily self-monitoring of saturated fat, the worksheet was developed to record their self-regulation activities.	1.5	SFA	0	4

			• Midwest university in the United States	Comparison group: participants were provided with education regarding saturated fats.				
Raymond, 2019[85]	Charlotte, North Carolina, USA	QE	• 831 employees participated in wellness programs •	Face-to-face individual health coaching by a nurse practitioner or physician assistant, monetary incentives based on HbA1c, BP, serum lipoproteins, WC, and tobacco abstention.	60	T-Cho, LDL, HDL, TG, BMI, WC	10.0	1
Reynolds, 1997[86]	USA	QE	• 351 employees • 6 telephone company worksites	Results and interpretation of cholesterol screening, self-help booklet to reduce intake of saturated fat and cholesterol, and increase intake of complex carbohydrates.	6	Fruits, vegetables, T-Cho	35.0	4
Ribeiro, 2014[87]	Brazil	RCT	• 100 employees • University of Sao Paolo Hospital	Intervention I: Pedometer and exercise log and eight group counselling sessions lasting 60 minutes each, discussing how to increase physical activity and overcome barriers to change. Intervention II: Pedometer and exercise log and three 15-minute individual physical activity education sessions per month and booklet on increasing physical activity.	3	WC, weight	30.5	4
Robbins, 2006[88]	USA	QE	• 124367 active duty Air Force members • 65 U.S. air force bases	U.S. Air Force memorandum describing the problem of elevated body weight, email messages targeting healthy eating and physical activity, workbooks.	12	Weight	44.8	4
Rowland, 2018[89]	USA	RCT	• 50 employees • Midwest health system	Participants were privately counselled by a nurse practitioner on the results of their cycle fitness test and given an exercise prescription that included: target, physical activity intensity based on cycle test results, instructions on the rating of perceived exertion scale and encouragement to achieve moderate-intensity physical activity and setting the goal to reach at least 150 minutes of moderate physical activity per week. Additionally, every other week they received a total of six 45 minutes group lunch and learn presentations at the workplace about physical activity health benefits. Comparison group: met every other week for 45-minute group lunch and had presentations for 12 weeks at the workplace in which they received general health information on diet, cancer, screening stress management and sleep.	3	FPG, T-Cho, TG, LDL, HDL	20	3
Rusali, 2018[90]	Klang Valley Malaysia	QE	• 108 participants • 3 different office worksites from Klang Valley	Group 1 (Face-to-face intervention): participants followed a weight reduction program called Slim Shape Module which consisted of sixteen 2-h sessions of talks, demonstrations, interactive activities, hands-on activities and exercise sessions. Sessions were related to dietary aspects and physical activity. Group 2 (Online intervention): Participants received all components of diet, behavioural and physical activity via an online weight reduction program. Control group: participants received educational information about diet, physical activity and behaviour modification for weight reduction in printed booklets.	4	Weight, BMI, body fat %, WC, T-Cho, TG, HDL, LDL, FPG	40	2
Ryu, 2017[91]	Seoul, South-Korea	QE	• 565 office workers employed at a single firm	3-arm intervention, including a health education group, self-monitoring group, and intensive intervention group Self-monitoring group: health education, and health clinic's U-Health System managed by the occupational health nurse used for voluntarily measuring health indicators and consultations regarding the measurements by the nurse. Intensive intervention group for the employees who had over three MetS indicators: health education, U-health system, group exercise for WC control, daily activity monitoring, health consultation, a round of runs, intensive physical exercise programs, such as core training and cycling exercise in workplace by certified exercise trainer, handheld activity tracker, personal health education and consultation by occupational health nurse from the company.	6	WC, SBP, DBP, FPG, TG, HDL	Not reported	2

				Health education control group: web-magazine leaflet on health-promoting behaviour, and health education on MetS-related diseases, the impact of chronic stress, obesity, nutrition, exercise, drinking and smoking on MetS.				
Saleh, 2010[92]	Upstate New York, USA	QE	• 673 employees • 6 rural employers: nursing home, home health care agency, museum, bank, special education home	Intervention 1: wellness awareness messages, HRA screening with one-on-one lifestyle coaching, high-risk referrals, high-risk case management. Intervention 2: unspecified wellness awareness messages.	48	Not available††	77.6	2
Salindari, 2013[93]	Greater Boston, Massachusett, USA	RCT	• 133 obese/overweight (BMI ≥ 25 kg/m^2) employees • 4 office-based companies	Weight loss program consisting of emails for individual support and group education sessions on dietary intake, health and nutrition education program consisting of newsletters and seminars on cardiovascular health, physical activity and childhood nutrition.	6	BMI, weight, SBP, DBP, T-Cho, HDL, LDL, TG, FPG††	120	4
Scoggins, 2011[94]	King County, Washington, USA	QE	• 27662 employees	Individualized action plans targeting health risks identified through HRA, lower out-of-pocket insurance as an incentive for participation in individualized action plans, newsletters, program website, wellness poster campaigns, stairwell use promotion, healthy vending machine options, free gym membership, employee garden, exercise events, free produce at worksites.	12	BMI	Not reported	2
Sforzo, 2012[95]	New York City, New York, USA	RCT	• 96 employees • Multinational financial investment corporation	Intervention I: Intervention II + educational classes on nutrition, exercise and stress management, healthy cafeteria tour to promote understanding of the food environment and healthy meal choices, healthy cafeteria meals, electronic messages, access to the Mayo Clinic Embody Health portal, interactive website with wellness information, self-quizzes and healthy habits diary, a financial incentive for participation. Intervention II: free gym membership, discount for healthy meal options in the cafeteria.	3	BMI, weight, body fat %, WHR, SBP, DBP	16.7	2
Shimizu, 2004[96]	Kyushu, Japan	QE	• 875 employees • 2 manufacturing worksites	Health interview with occupational health nurse, health measuring of circulatory and motion functioning, group education on exercise, nutrition and stress management.	48	BMI, SBP, DBP, T-Cho, HDL	28.1	2
Shrivastava, 2017[97]	Delhi, India	RCT	• 310 employes • 4 worksites from the private and public sector from different sites across Delhi and National Capital Region	Detail sessions on the different topics related to healthy living, diet and physical activity every 15 days for 45-60 minutes. Nutrition topics included healthy eating pattern and food articles, eating outside home, portion control, choice of oils, correct cooking methods, food labels and eating during the traditional festive season. Two physical activity training sessions were given to explain the best practices in physical activity and encourage them to continue physical activity supported by the use of a pedometer. Stress management sessions were also provided. Comparison group: they received general health talk twice in six months.	6	Weight, BMI, WC, WHR, SBP, DBP, FPG, T-Cho, HDL, LDL, TG	13.9	3
Siegel, 2010[98]	Los Angeles, California, USA	RCT	• 413 employees • 16 public elementary schools	Worksite wellness committee, healthy snacks at meetings, walking clubs, newsletters, healthy cooking class, training in stress management, CPR and first aid, competition and awarded cash prizes for participation in wellness activities.	24	Fruits, vegetables, BMI, WHR	N/A‡	4
Smith-McLallen, 2017[99]	Philadelphia, Pennsylvania region, USA	RCT	• 459 members of the Independence Blue Cross Wellness Partner • Companies of 200 or fewer employees	Accelerometer, Walking Works Web site for step logs, flyers and poster, e-mails, between-group walking challenges, twice-monthly feedback on their miles walked and tokens for every 10,000 step, team competition, prizes (such as gym bag, backpacks, cookbooks), worksite-specific walking maps, monthly wellness seminars, including goal setting, barriers, stress reduction and healthy eating habits. Comparison group: were given a tool kit that was free and available to all employer's groups via the Walking Work Web site. It included instructions and resources for administering the program, flyers and posters, email-texts that could be used to encourage and motivate employees and information about the Walking Work Web site and how to have employees log step online.	9	Weight, BMI, WHR, SBP, DBP, FPG, T-Cho	67.8	3

Song, 2019[100]	Eastern United States	RCT	• 160 worksites of which 20 were randomly selected as intervention site, 20 as control sites and 120 were secondary controls • 8143 employees randomised to intervention or primary control group • Warehouse retail company, BJ's Wholesale Club	8 modules, including a webinar on health and primary care, healthy weight through 4 pillars: nutrition, exercise, stress management and sleep, 20 minutes or more cardiovascular exercise at least 3 days a week, activity log, weight log, weekly coaching with a registered dietician, tips to add physical activity to a daily routine and for substitution options with fewer calories when dining out, activities options for managing stress and losing weight. Monetary incentives (gift cards) for each completed module.	18	Fruit and vegetables, T-Cho, HDL, LDL, FPG, SBP, DBP, BMI	74.6*****	4
Sorensen, 2005[101]	Greater Boston metropolitan area, Massachusetts, USA	RCT	• 1740 employees • 26 manufacturing industries	Employee advisory committee, table-top displays, demonstrations, small-group discussions focused on nutrition, physical activity and occupational health, health fairs with biometric and behavioural self-assessments and feedback, healthy food options at company meetings and events, facilities and signs to promote physical activity, worksite consultation with an industrial hygienist, smoke-free worksite, smoking cessation program. Control intervention: smoking cessation program.	18*	Not available††	N/A‡	5
Sorensen, 1999[102]	Eastern Massachusetts, USA	RCT	• 1359 employees • 22 community health centers •	Intervention I: employee advisory committee, healthful meal discussion series, nutrition education campaign, healthy recipes, cookbook, increased availability of fruits and vegetables in vending machines, free fruits and vegetables at special occasions and break rooms, point-of-choice labelling of fruits and vegetables, posters, videos, brochures, exposure to national 5-a-Day media campaign and Cancer Information Service Hot Line, general nutrition presentation, and a taste test. Intervention II: intervention 1 + written learn-at-home program, annual family newsletter, annual family festival, mailings of materials to families. Control intervention: exposure to national 5-a-Day media campaign and Cancer Information Service Hot Line, general nutrition presentation, and a taste test.	19.5*	Fruits, vegetables	N/A‡	5
Sorensen, 1996[103]	USA	RCT	114 worksites of 4 study centers: Brown University School of Medicine/Miriam Hospital, Dana Farber Cancer Institute/ University of Massachusetts, University of Florida, MD Anderson Cancer Center§	Employee advisory committee, group education on nutrition and smoking, posters, brochures, self-assessments, self-help materials, contests, smoking policy, change in the cafeteria and vending machine food offerings. Control intervention: summary of baseline results, posters, newsletters.	24*	Fruits, vegetables, total fat, fibre	N/A‡	5
Sorensen, 1992[104]	Massachusetts and Rhode Island, USA	RCT	• 3076 employees • 16 insurance, health care, computer, food wholesaling, telecommunication, shoe manufacturing, construction, manufacturing worksites	Same as Hebert, 1993.	15	Total fat, fibre	34.6	5
Steenhuis, 2004[105]	Netherlands	RCT	• 1013 employees • 17 worksites of large Dutch companies and government organizations	Intervention I: Self-help manual focused on eating less fat and more fruits and vegetables, posters, brochures, table tents, worksite newsletter, contest. Intervention II: Intervention 1 + labelling of low-fat products in cafeteria. Intervention III: Intervention 1 + increased availability of low-fat products, fruits and vegetables in the cafeteria.	1	Fruits, vegetables, total fat	Not reported	3
Stites, 2014[106]	USA	RCT	• 28 employees	Mindful eating training encouraged to pre-order lunches, financial incentives (vouchers) for healthy lunch.	3 to 4	Weight	6.5	3

			• Large urban hospital, Philadelphia PA					
Strijk, 2012[107]	Netherlands	RCT	• 730 employees • 2 academic hospitals	Vitality Exercise Program, consisting of yoga sessions, workout sessions and unsupervised aerobic exercise sessions, visits with a personalized vitality coach for goal setting and goal feedback, free fruit, written information on healthy lifestyles. Comparison group: written information on healthy lifestyles.	6	Fruits	21.2	4
Tan, 2016[108]	Singapore	RCT	• 585 female employees • 16 worksites primarily office-based and sedentary in nature	Three intensive intervention workshops addressing diet and physical activities, including goal setting, participatory skill-building activities, peer support, problem-solving discussions, food sampling, nutrition label reading, diet log, self-monitoring of physical activity, exercise feedback and cues, short bouts of exercise breaks, exercise CD and a 10-min exercise poster with instructions and illustrations. Comparison group: participants received a resource kit with general print resources on bone health and osteoporosis prevention. They also received information and recommendations about vitamin D.	7	Not available††	16.4	4
Terry, 2011[109]	Northern Midwest, USA	RCT	• 429 employees • 2 worksites: integrated health care system, national airline	Seminars and interactive educational campaigns on physical activity, nutrition, injury prevention and stress management, improved food service options, maps for walking routes, one-on-one healthy lifestyle coaching with registered dieticians for high-risk participants. Control intervention: education on personal development topics, including time management, dealing with different people and hobbies.	18*	Not available††	45.2	4
Thompson, 2014[110]	USA	RCT	• 20 overweight/ obese primary care physicians • Mayo Clinic Rochester Department of Medicine	Treadmill desks, weekly 20-minute counselling sessions about increasing physical activity, accelerometer with visual feedback on activity level.	3	Body fat, FPG, HDL, lean body mass, TG, weight	15.0	3
Tucker, 2016[111]	USA	RCT	• 40 employees (RNs & MAs) • Two clinics at University of Iowa Hospital	Treadmill desks, Wii video game system in the break room, video clips to promote short burst of physical activity, stair climbing and walking meetings with colleagues, mobile health coaching via text messaging.	3	BMI, body fat %, lean body mass, weight	20.0	4
van Berkel, 2014[112]	Netherlands	RCT	• 257 employees • 2 Dutch research institutes	Group mindfulness training, meditation and breathing homework exercises, email coaching, goal setting, free healthy snacks, lunch walking routes, a buddy system for peer support. Control intervention: education on lifestyle behaviour-related facilities available at the worksite.	6*	Fruits	9.1	4
Velema, 2018[113]	Netherlands	RCT	• 482 employees • 30 worksites cafeterias	The intervention consisted of 14 strategies designed to result in the purchasing of healthier food options based on product, place, price and promotion. Product: product as a better choice was visibly offered, a warm lunch meal offered in a smaller portion, fruits and vegetables offered, water offered for free, among others. Place: healthier products at the beginning of the route, of every group there was a better choice option, among others. Price: cheap combo deal was offered, prices of warm snacks increased by 25% and prices on healthier sandwich decreased 25%. Promotion: there was a promotion of food products in the better choice category when a healthier product was promoted it had a permanent spot in the cafeteria, and in the menu heathier products were listed first.	3	Not available††	0	5
Viester, 2018[114]	Netherlands	RCT	• 314 blue collar male employees • Construction company	The "VIP construction program" was a tailored program including personal health coaching, information and tools to support changes in physical activity and dietary behaviour, such as coaching sessions and personalized feedback on their health screening, current lifestyle, support by self-monitoring and goal settings; Also participants received a personal energy plan among others.	6*	Weight, BMI, WC, SBP, DBP, T-Cho, fruits and vegetables	17.2	4

				Comparison group: received the usual care, which consisted only of noncompulsory periodic health screenings.				
Viitasalo, 2015[115]	Finland	QE	• 2312 employees • Airline company	Health assessment with tailored health advice for specific conditions, employees with elevated type 2 diabetes risk were offered 1-3 one-hour individual counselling sessions with dietitian or nurse, five group education sessions, interactive website on diabetes prevention. Intervention I: Participants attended one session. Intervention II: Participants attended more than one session.	24	BMI, FPG, HDL, LDL, T-Cho, TG, WC, weight	41.7	2
Vilela, 2015[116]	Brazil	RCT	• 60 employees • Chemical industry workers in Sao Paulo	Physical exercise program five times per week for 15 minutes, educational lectures on diet and exercise, articles distributed every 10 days on benefits of physical activity and disease prevention.	4	Body fat %, lean body mass, weight	0.0	4
Wierenga, 2014[117]	Netherlands	QE	• 1208 employees • 2 worksites	Interventions varied by location but may have included: health screening, group education, nutrition labelling and signage, cafeteria menu changes, free healthy snacks, opportunities for onsite physical activity, pedometers, mindfulness training, standing desks and tables, environmental changes such as creating a bike-friendly workplace.	12	BMI, fruits, vegetables	Not reported	3
Williams, 2014[118]	USA	RCT	• 1207 employees • 30 hotels Honolulu HI	Forty-eight-week group nutrition education, health promotion signage in employee areas, newsletters to reinforce group curriculum concepts, change to cafeteria recipes, a cookbook of healthier versions of familiar dishes.	24	BMI, WHR	81.5	5
Wilson, 2016[119]	USA	RCT	• 916 employees • 5 worksites of Union Pacific Railroad Mechanical Group	Program manual based off of Diabetes Prevention Program curriculum, colleague health coach mentorship, group education during routine meetings, environmental changes such as health promotion signage, company policies on the healthy vending, interactive website with access to all intervention materials.	6	BMI, fruits, total fat, vegetables, weight	64.9	4
Wilson, 2016[120]		RCT	• 649 employees across 3 sites • City-county government employees of three large counties in Georgia • Employees at high risk for developing T2DM	3-arm intervention, including a phone, small group and self-study arm Phone arm: program manual consisting of 16 lessons on healthy eating, physical activity and barriers to weight loss, and 8 sessions with a health coach one-on-one by phone. Small group arm: program manual consisting of 16 lessons on healthy eating, physical activity and barriers to weight loss, and 8 sessions with a health coach in small groups of 8 to 10 employees, including feedback, goal-setting, action plan, peer support. Comparison Self-study group: program manual consisting of 16 lessons on healthy eating, physical activity and barriers to weight loss, and brief orientation on goal setting and an email reminding them to review each lesson.	6*	Weight, BMI	35.6	3
Zoellner, 2016[121]	USA	RCT	• 1790 employees • 28 worksites	Daily emails with eating, exercise and behavioural strategies, a participant website with behavioural weight loss tools, a kiosk to track weight and progress and quarterly monetary incentives. Comparison group: a less intensive program, more text-based and delivered through four quarterly newsletters and for 1-hour group resource sessions.	3	Not available[††]	18.4	2

RCT= randomised controlled trial; QE=quasi experimental; FFQ=food frequency questionnaire; BMI=body mass index; WC=waist circumference; WHR=waist-to-hip ratio; SBP=systolic blood pressure; DBP=diastolic blood pressure; T-Cho=total cholesterol; TG= triglycerides; LDL=low-density lipoprotein; HDL=high-density lipoprotein; FPG=fasting plasma glucose; PUFA=polyunsaturated fatty acids; SFA=saturated fatty acids

*Follow up period longer than intervention period (Allen – 12, Balk-Moller – 22, Eshah – 2.5, Flannery – 6, Glasgow 1997 & 1995 – 24, Gomel 1997 & 1993 – 12, Guldan – 2.5, Gysan – 36, Kamioka – 20, Jamal -9, Kuehl – 6, Miller – 7, Morgan – 3.5, Peters – 6, Sorensen 2005 – 48, Sorensen 1999 – 24, Sorensen 1996 – 36, Terry – 24, van Berkel – 12, Viester – 12, Wilson [139]- 12)

† Drop-out rate calculated using common cohort between baseline and follow up cross sections when cohort analysis provided
‡ Separate cross sections analysed at baseline and follow up
[§]Baseline or follow up sample size not reported (Sorensen 1996, Chen 2008, Rajaratnam 2014, Widmer 2016, Wierenga 2014)
[¶]Comparison group received no intervention unless otherwise stated
**12mo data used for BMI outcome due to erroneous 24mo data
****Mache results are from the same study one paper stratified by weight status the other paper, only by participation in intervention vs. control. For all estimates we used the more conservative estimate if results differed between the two papers.
***** Hossain [44] loss of follow up is limited to the comparison of group A compared to group B.
****** Song [100] Loss of follow up was calculated based on the flow-chart and clinical biometrics (most conservative approach mas used)
[††]Reported outcome data could not be interpreted quantitatively (Carpenter 2014, Gomel 1997 & 1993), standardized (Agarwal 2015, Edries 2013, Goetzel 2014, Guldan 1992, Pegus 2002, Saleh 2010, Sorensen 2005), or was not included in the final meta-analysis manuscript (Eshah 2010, Kwak 2009, Maes 1999, McDonough 2015, Mills 2007, Salinardi 2013[total cholesterol:HDL ratio only], Terry 2011, Carr 2016, Doran 2018 [only the first study], Miller 2016, Peters 2018, Tan 2016, Velema 2018, Zoeller 2016)

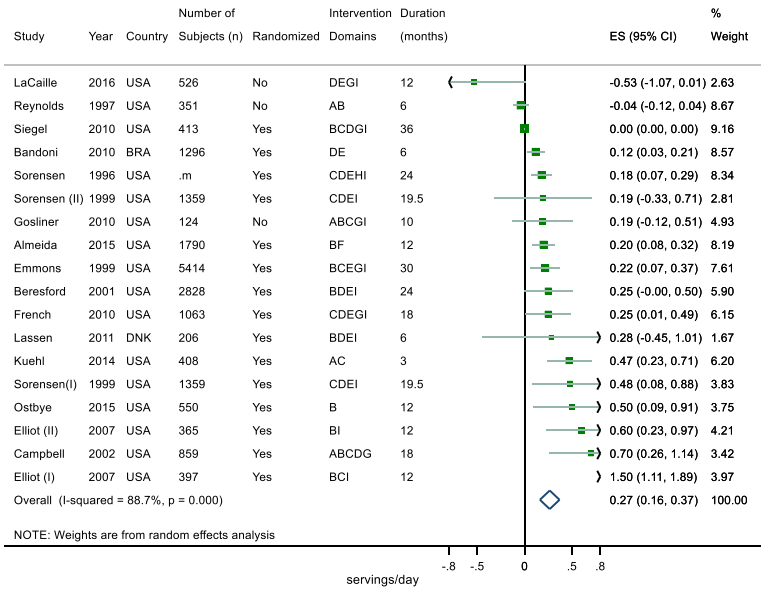

Fig. S1. Forest plot fruit and vegetable consumption

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I). *m. Data not reported (Further information TableS3).

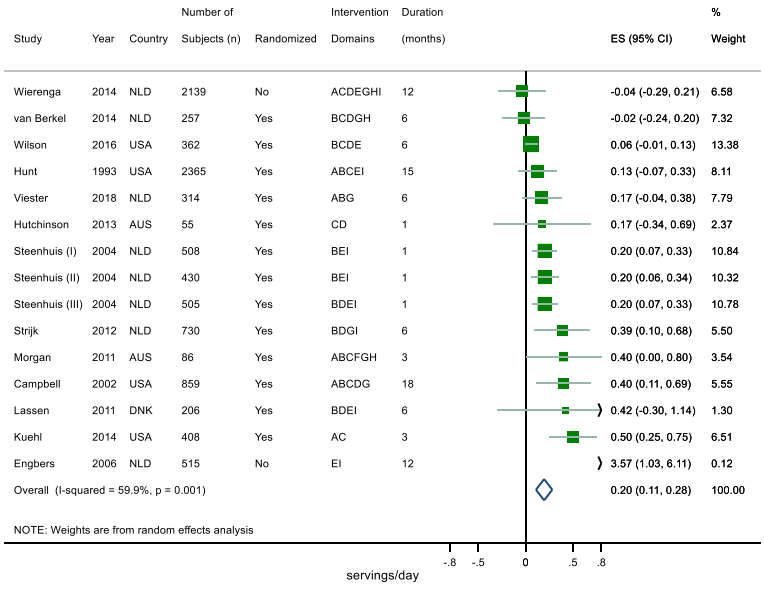

Fig. S2. Forest plot fruit intake

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

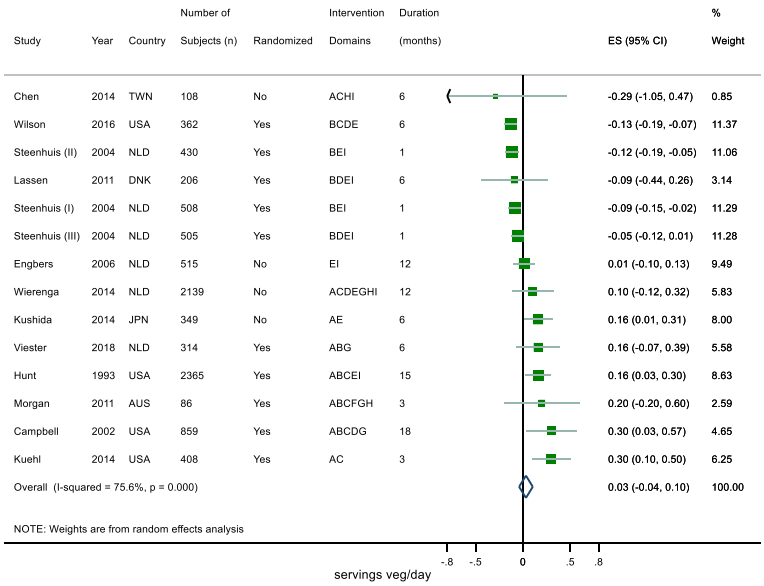

Fig. S3. Forest plot vegetable consumption

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

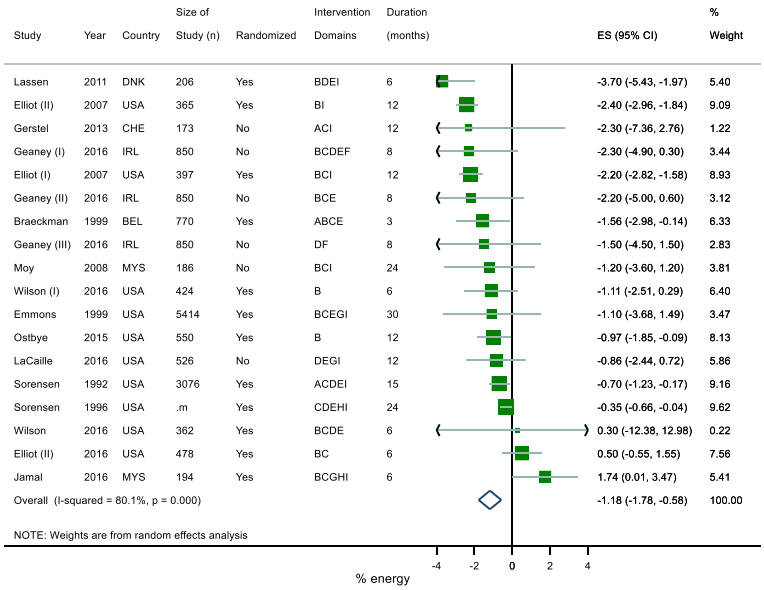

Fig. S4. Forest plot total fat intake

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I). *m. Data not reported (Further information TableS3).

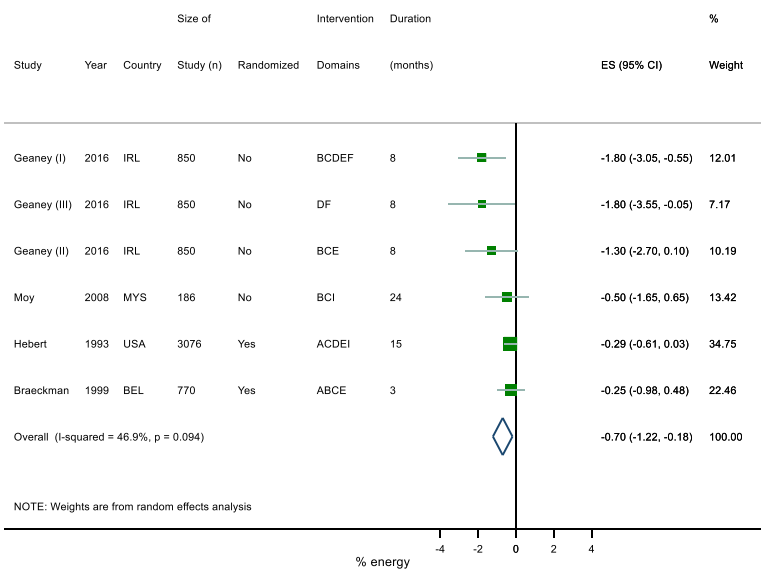

Fig. S5. Forest plot saturated fat intake

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

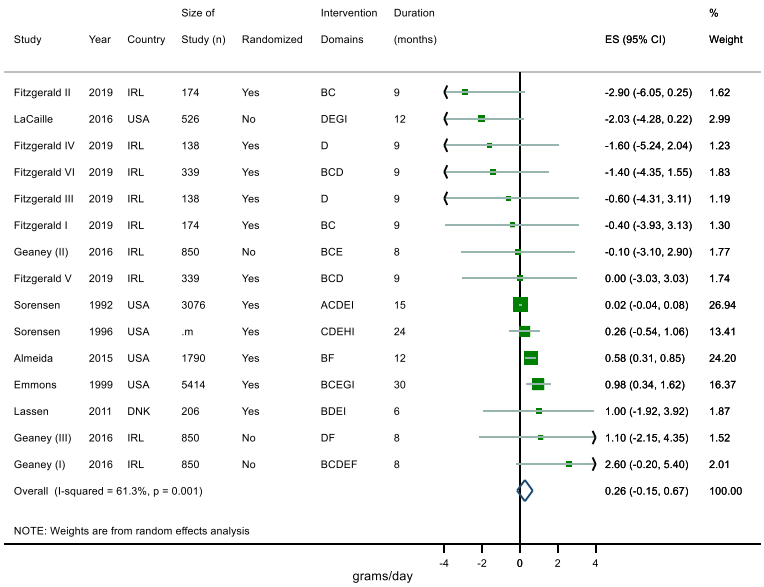

Fig. S6. Forest plot fibre intake

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I). *m. Data not reported (Further information TableS3).

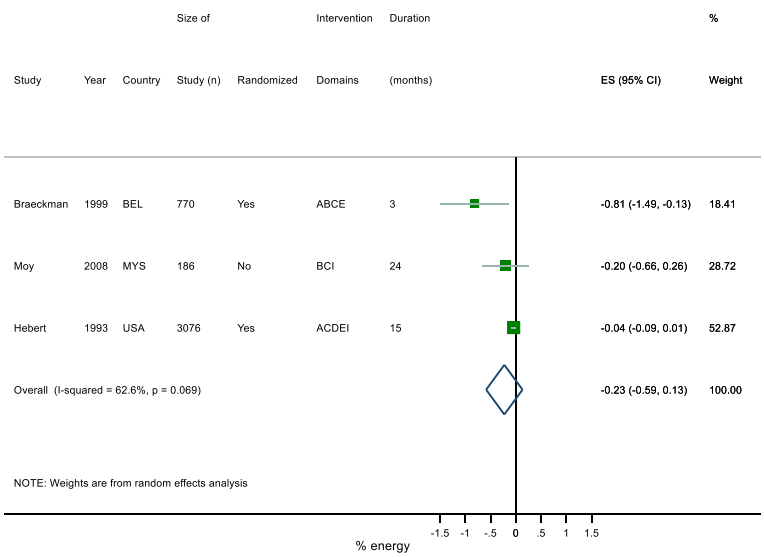

Fig. S7. Forest plot PUFA intake

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

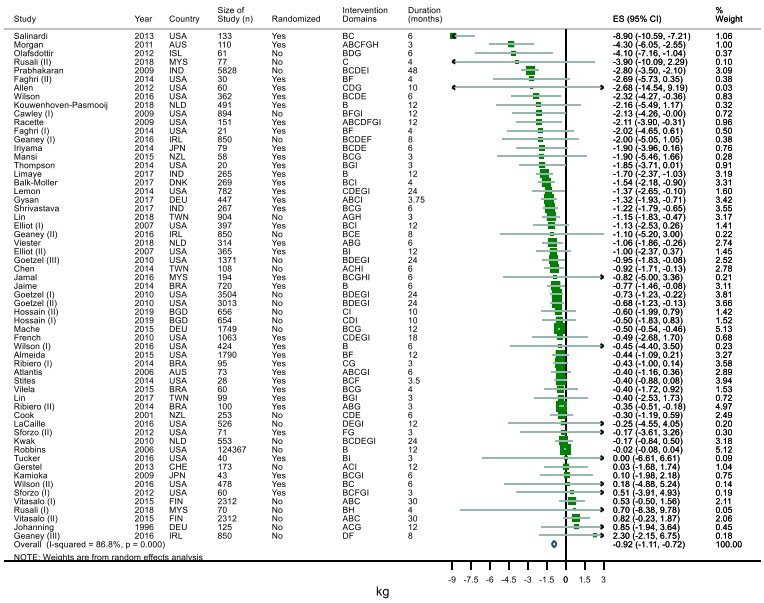

Fig. S8. Forest plot weight

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

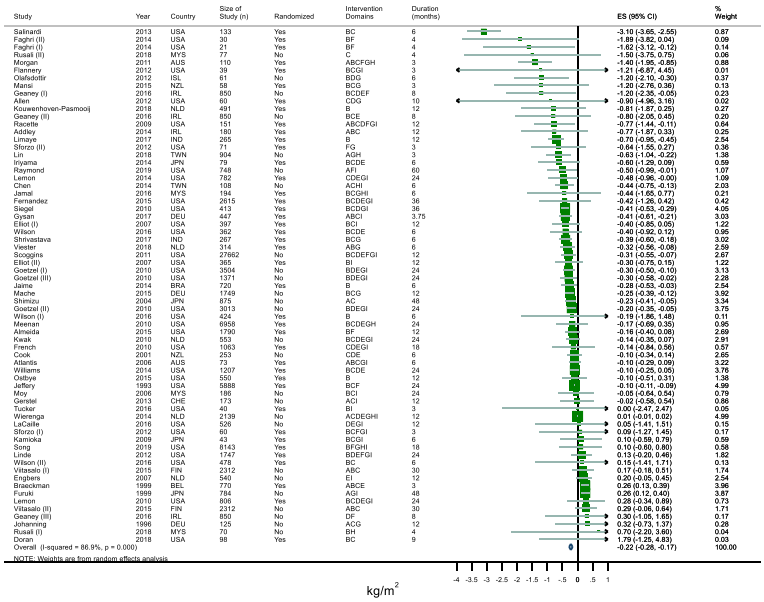

Fig. S9. Forest plot body mass index (BMI)

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

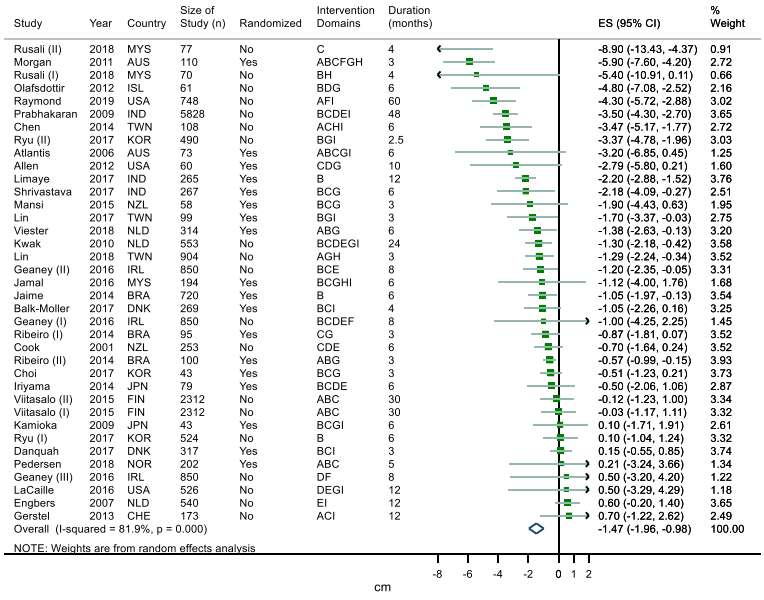

Fig. S10. Forest plot waist circumference

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

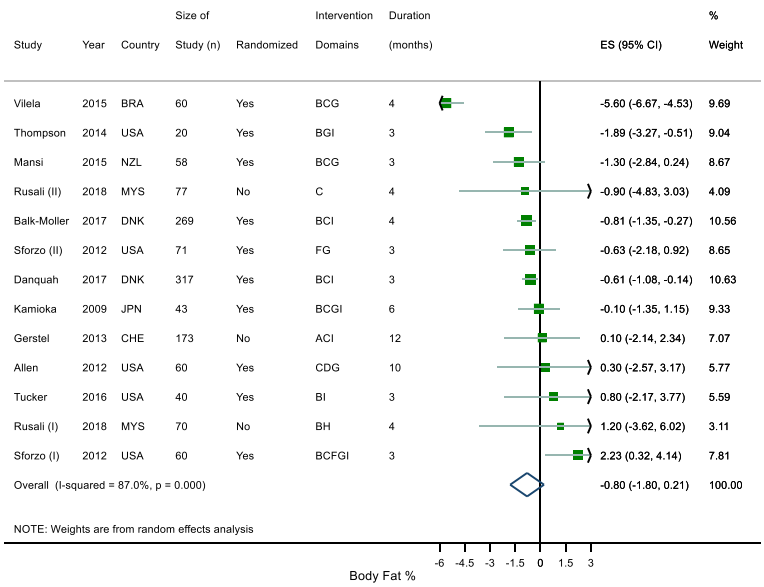

Fig. S11. Forest plot body fat %
Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

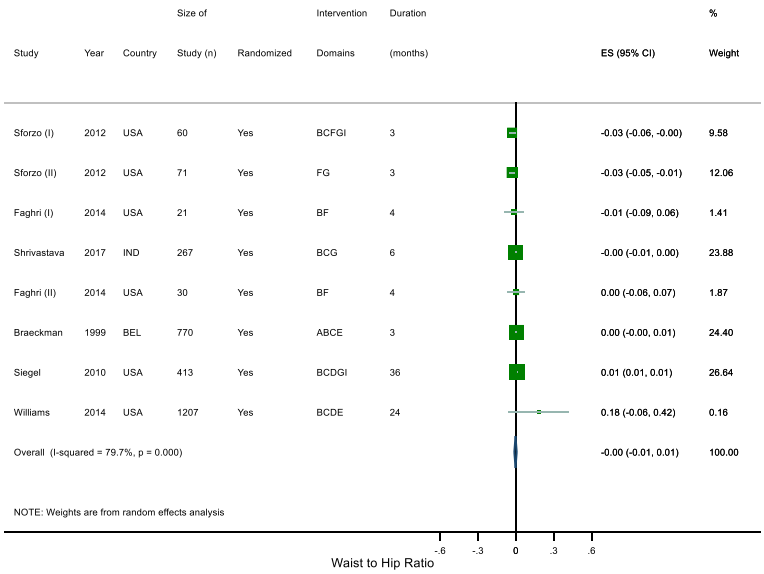

Fig. S12. Forest plot waist-to-hip ratio
Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

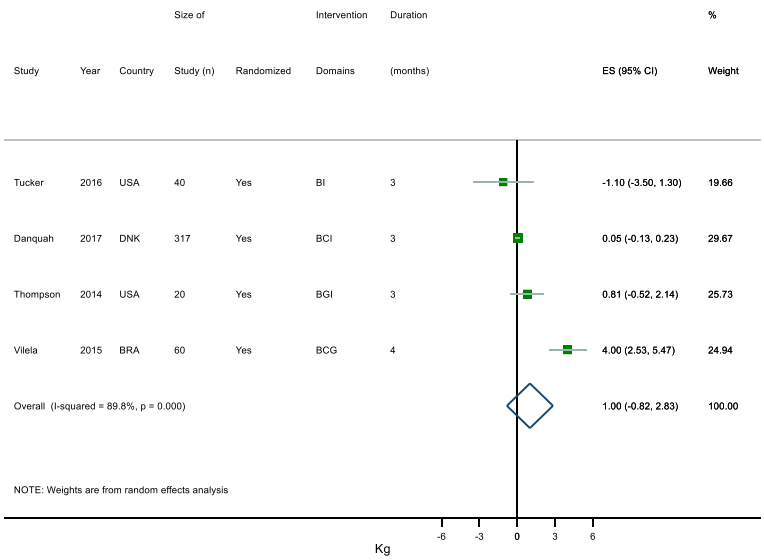

Fig. S13. Forest plot % lean mass

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

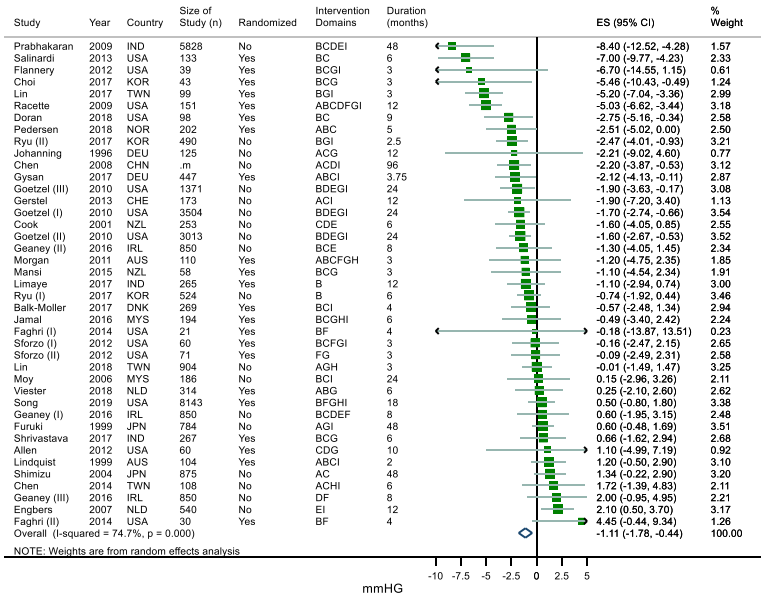

Fig. S14. Forest plot Diastolic blood pressure

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I). *m. Data not reported (Further information TableS3).

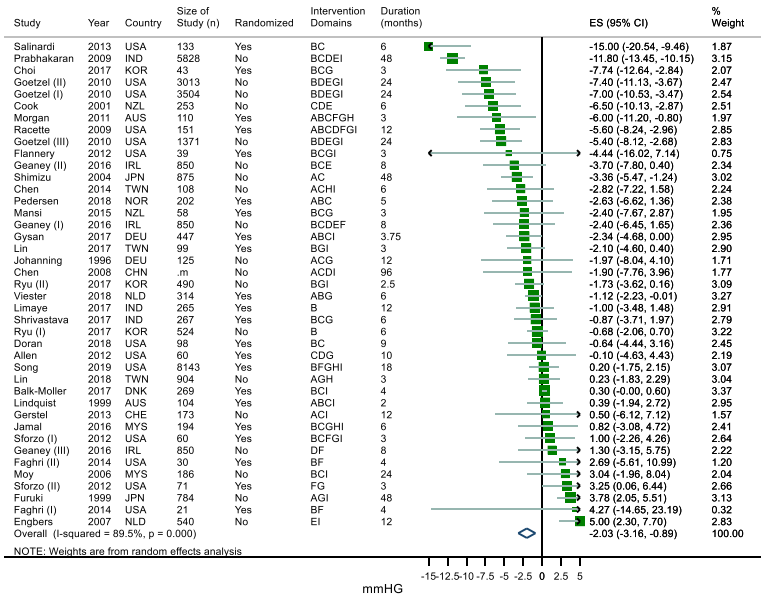

Fig. S15. Forest plot systolic blood pressure

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I). *m. Data not reported (Further information TableS3).

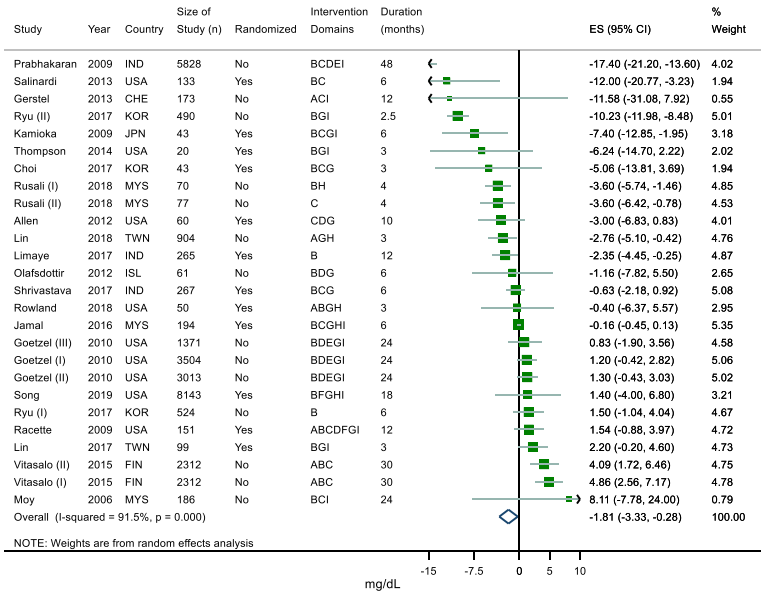

Fig. S16. Forest plot fasting plasma glucose

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

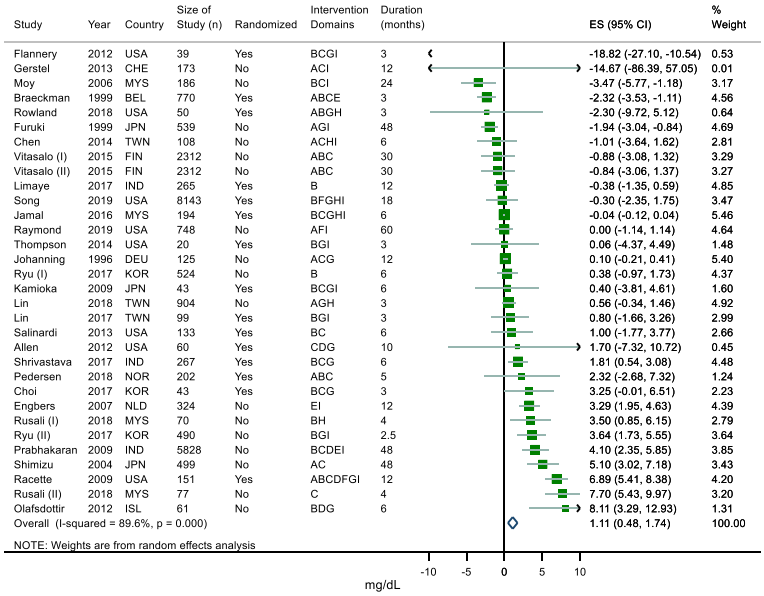

Fig. S17. Forest plot HDL-cholesterol

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

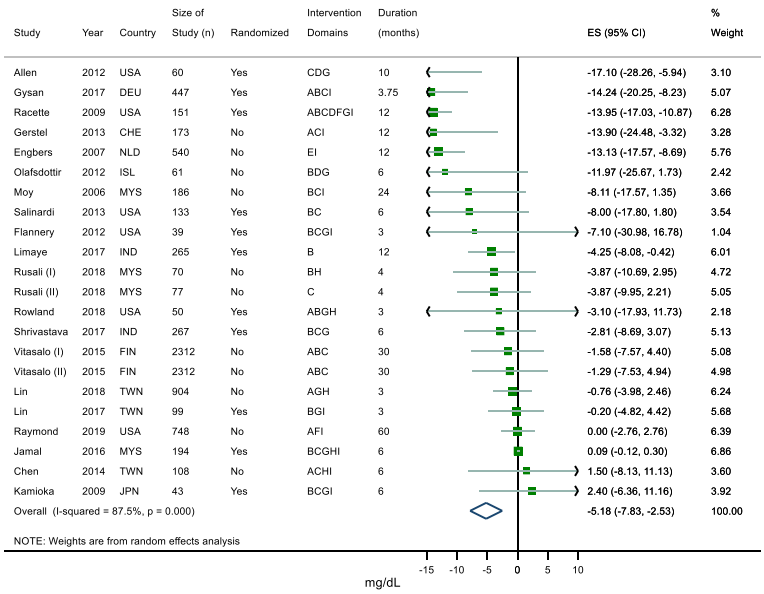

Fig. S18. Forest plot LDL-cholesterol

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

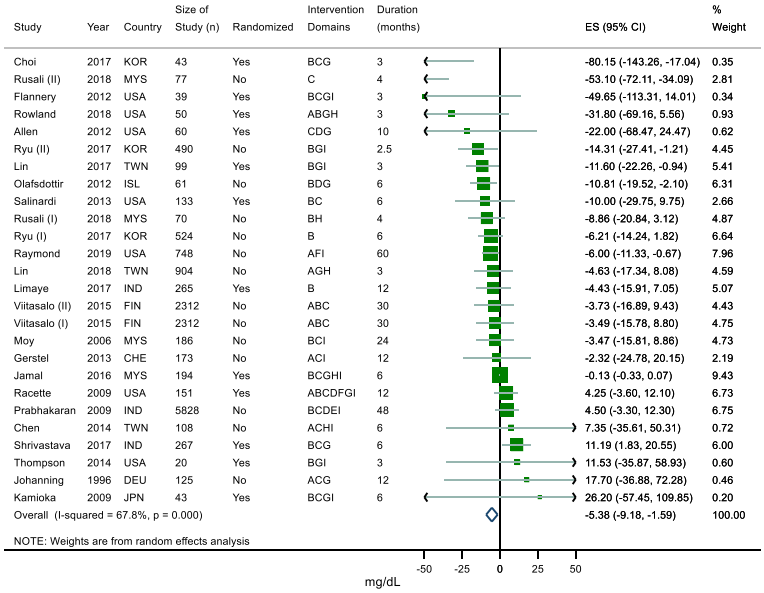

Fig. S19. Forest plot triglycerides

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

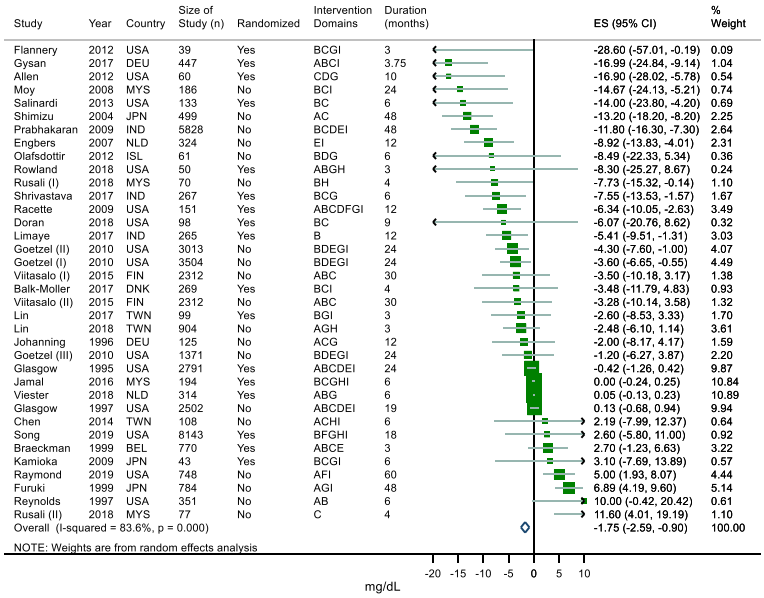

Fig. S20. Forest plot total cholesterol

Intervention domains stated for Screening (A), Individual education (B), Group education (C), Food environment (D), Labelling (E), Financial incentives (F), Physical Activity (G), Self-awareness (H), and Others (I).

Table S5. Univariate meta-regressions: Heterogeneity exploration for dietary outcomes

	Fruits & vegetables (serv/day)		Fruits (serv/day)		Vegetables (serv/day)		Total Fat (% energy intake)		Fibre (g/day)	
	n	β (95% CI) p of uni-variate	n	β (95% CI) p of uni-variate	n	β (95% CI) p of uni-variate	n	β (95% CI) p of uni-variate	n	β (95% CI) p of uni-variate
Overall estimate of intervention effects	18	**0.27 (0.16, 0.37) 0.000**	15	**0.20 (0.11, 0.28) 0.001**	14	0.03 (-0.04, 0.10) 0.389	18	**- 1.18 (-1.78, -0.58) 0.000**	15	0.26 (-0.15, 0.67) 0.215
Age[+]										
Years	13	-0.032 (-0.151, 0.087) 0.563	13	-0.001 (-0.030, 0.029) 0.965	13	0 .006 (-0.021, 0.033) 0.621	17	0.066 (-0.248, 0.380) 0.660	9	0.042 (-0.196, 0.283) 0.678
Sex[+]										
% Males	18	0.005 (-0.001, 0.011) 0.097	15	-0.000 (-0.004, 0.004) 0.855	14	-0.001 (-0.005, 0.002) 0.502	17	**-0.022 (-0.042, -0.003) 0.027**	15	0.002 (-0.028, 0.032) 0.865
Number of Components[+]	18	-0.008 (-0.086, 0.070) 0.831	15	**-0.048 (-0.086, -0.010) 0.017**	14	0.0003 (-0.050, 0.050) 0.990	18	0.195 (-0.047, 0.436) 0.107	15	0.095 (-0.109, 0.298) 0.334
Design[++]										
Randomised Intervention	15**	0.367 (0.177, 0.557) 0.001	13**	0.201 (0.094, 0.308) 0.001	10**	0.031 (-0.079, 0.142) 0.551	12**	-1.084 (-1.855, -0.313) 0.009	11**	0.279 (-0.237, 0.794) 0.264
Non-Randomised Intervention	3	-0.445 (-0.915, 0.026) 0.062	2	-0.190 (-0.617, 0.237) 0.355	4	0.039 (-0.182, 0.260) 0.707	6	-0.477 (-2.148, 1.195) 0.554	4	-0.199 (-1.994, 1.595) 0.814
Location[++]										
North America (US & Canada)	16**	0.313 (0.098, 0.527) 0.007	4	0.035 (-0.204, 0.272) 0.759	4	0.128 (-0.081, 0.336) 0.205	10**	-1. 047 (-1.757, -0.338) 0.007	5	0.450 (-0.874, 1.773) 0.476
Europe, Australia, New Zealand	1	-0.033 (-1.193, 1.128) 0.953	11**	0.183 (0.046, 0.322) 0.013	8**	-0.011 (-0.133, 0.111) 0.851	6	-1.268 (-2.751, 0.214) 0.088	10**	-0.115 (-1.330, 1.100) 0.841
Other (Asia, Latin America, Africa)	1	-0.195 (-1.013, 0.623) 0.619	0	-	2	0.117 (-0.217, 0.450) 0.458	2	1.602 (-.540, 3.744) 0.132	0	-
Wald test (p value)*		0.879*		0.759*		0.390*		0.057*		0.476*
Type of Workplace[++]										
Office	2	-0.331 (-0.968, 0.306) 0.282	1	**3.398 (0.534, 6.261) 0.024**	1	-0.036 (-0.403, 0.331) 0.833	0	-	0	-
Hospital	3	-0.335 (-0.963, 0.293) 0.270	1	0.211 (-0.210, 0.633) 0.294	0	-	1	0.489 (-2.500, 3.478) 0.731	0	-
School	2	-0.194 (-0.861, 0.474) 0.542	0	-	0	-	2	1.492 (-0.604, 3.587) 0.149	0	-
Factory	2	-0.017 (-0.663, 0.696) 0.959	3	0.018 (-0.209, 0.245) 0.865	4	-0.015 (-0.276, 0.246) 0.903	6	-0.334 (-2.118, 1.451) 0.695	1	0.826 (-0.310, 1.962) 0.140
Mixed and Other[1]	9**	0.409 (0.119, 0.699) 0.009	10**	0.175 (0.063, 0.285) 0.005	9**	0.050 (-0.073, 0.173) 0.393	9**	-1.349 (-2.246, -0.452) 0.006	9**	0.152 (-0.298, 0.602) 0.478
Wald test (p value)*		0.530*		0.100*		0.973*		0.848*		0.140*
Quality Score[++]										

0-3	4	-0.310 (-0.751, 0.131) 0.156	6	-0.044 (-0.272, 0.184) 0.683	7**	-0.017 (-0.139, 0.104) 0.764	8	0.226 (-1.204, 1.655) 0.742	10**	-0.570 (-1.662, 0.521) 0.279
4-5	14**	0.366 (0.157, 0.575) 0.002	9**	0.213 (0.067, 0.360) 0.008	7	0.127 (-0.056, 0.311) 0.157	10**	-1.265 (-2.112, -0.417) 0.006	5	0.997 (-0.1916, 2.186) 0.093
Duration[++]										
0-5 Months	1	0.161 (-0.735, 1.058) 0.606	6	0.153 (-0.013, 0.318) 0.067	5	-0.027 (-0.219, 0.165) 0.761	1	-0.228 (-3.288, 2.828) 0.875	0	-
6-12 Months	9**	0.309 (0.010, 0.608) 0.044	7**	0.083 (-0.029, 0.196) 0.133	7**	0.022 (-0.111, 0.155) 0.721	13**	-1.332 (-2.228, -0.436) 0.007	12**	-0.047 (-0.929, 0.836) 0.910
13-23 Months	4	0.092 (-0.457, 0.642) 0.724	2	0.138 (-0.145, 0.421) 0.309	2	0.191 (-0.085, 0.466) 0.155	1	0.633 (-2.060, 3.324) 0.622	1	0.067 (-1.614, 1.747) 0.933
24+ Months	4	-0.149 (-0.656, 0.359) 0.539	0	-	0	-	3	0.599 (-1.412, 2.610) 0.533	2	0.685 (-0.772, 2.141) 0.326
Wald test (p value)*		0.814*		0.158*		0.256*		0.881*		0.587*
Intervention Components[++] **~**										
Intercep		0.271 (-0.561, 1.104)		0.459 (-0.083, 1.001)		-0.019 (-0.336, 0.297)		-0.378 (-2.868, 2.111)		-2.085 (-6.570, 2.399)
Individual Education	11	0.283 (-0.330, 0.896) 0.318	11	-0.151 (-0.632, 0.329) 0.455	9	-0.134 (-0.302, 0.034) 0.091	13	-0.524 (-2.836, 1.787) 0.615	9	-0.505 (-6.770, 5.761) 0.844
Group Education	10	**0.607 (0.031, 1.183) 0.041**	8	0.012 (-0.423, 0.444) 0.952	7	0.038 (-0.132, 0.208) 0.570	12	0.953 (-0.106, 2.011) 0.072	9	1.961 (-3.171, 7.095) 0.371
Food Environment	10	-0.066 (-0.613, 0.481) 0.788	8	0.013 (-0.282, 0.308) 0.917	5	0.052 (-0.062, 0.167) 0.273	7	1.642 (-1.327, 4.610) 0.238	10	-0.169 (-3.596, 3.259) 0.904
Labelling and Information	9	-0.144 (-0.821, 0.532) 0.635	8	-0.269 (-0.710, 0.172) 0.177	9	-0.064 (-0.363, 0.235) 0.582	9	**-2.156 (-4.066, -0.247) 0.031**	7	0.368 (-3.580, 4.317) 0.820
Screening	4	-0.335 (-1.036, 0.366) 0.303	6	-0.028 (-0.492, 0.437) 0.884	8	**0.241 (0.059, 0.423) 0.021**	3	0.900 (-0.807, 2.607) 0.259	1	-3.446 (-15.203, 8.310) 0.485
Financial Incentives	1	-0.354 (-1.320, 0.611) 0.422	1	0.473 (-0.441, 1.387) 0.241	1	0.355 (-0.410, 1.120) 0.268	2	-2.237 (-5.338, 0.864) 0.135	3	3.170 (-0.902, 7.242) 0.102
Physical Activity	6	-0.520 (-1.065, 0.025) 0.059	6	-0.050 (-0.720, 0.620) 0.854	4	0.107 (-0.277, 0.492) 0.481	3	**2.122 (0.600, 3.644) 0.012**	3	-2.447 (-10.823, 5.929) 0.486
Self Awareness	1	-0.351 (-1.247, 0.545) 0.393	3	-0.313 (-0.990, 0.364) 0.287	3	-0.388 (-0.960, 0.185) 0.133	2	1.404 (-0.195, 3.002) 0.078	1	-3.206 (-15.010, 8.597) 0.516
Other[2]	12	-0.137 (-0.801, 0.527) 0.648	8	0.152 (-0.213, 0.517) 0.334	8	0.112 (-0.059, 0.283) 0.144	10	**-1.816 (-2.907, -0.725) 0.005**	5	3.390 (-5.959, 12.739) 0.394
Wald test (p value)*		0.340*		0.361*		0.053*		**0.023***		0.515*
Target(s) of Intervention[++] **~**										
Intercep		0.268 (-0.030, 0.566)		-0.187 (-0.610, 0.236)		-0.110 (-0.534, 0.314)		-3.266 (-4.556, -1.977)		0.318 (-1.663, 2.298)
Weight Loss	6	**-0.477 (-0.916, -0.037) 0.035**	5	-0.005 (-0.252, 0.243) 0.967	6	-0.090 (-0.368, 0.188) 0.481	11	**1.315 (0.334, 2.296) 0.012**	12	-0.558 (-2.150, 1.035) 0.457
Diet	18	(Drop due to collinearity)	14	0.380 (-0.030, 0.789) 0.066	13	0.100 (-0.309, 0.509) 0.593	18	Drop due to collinearity	15	Drop due to collinearity
Physical Activity	11	**0.476 (0.045, 0.908) 0.033**	9	-0.124 (-0.390, 0.142) 0.323	8	0.027 (-0.237, 0.292) 0.819	11	1.130 (-0.0769, 2.337) 0.064	3	0.410 (-0.874, 1.693) 0.497
Other[3]	7	-0.232 (-0.578, 0.113) 0.171	5	**0.274 (0.059, 0.489) 0.018**	5	**0.274 (0.007, 0.542) 0.045**	6	**1.969 (0.747, 3.191) 0.004**	3	0.169 (-1.346, 0.685) 0.810
Wald test (p value)*		0.097*		0.069*		0.223*		**0.007***		0.585*

Abbreviations: servings/dal (serv/day); number of observations (n). [1] Mixed is defined as a combination of the pre-specified work type whereas, other differs from our pre-specified categories (e.g. a mixed worksite would be a company-wide WWP that targeted both white-collar executives as well as the blue-collar. [2] Other: components not included in previous groups, including employee advisory committees. [3] Other intervention targets included the reduction in CVD risk factors, smoking cessation, stress reduction, diabetes, or cancer prevention. [+] Age, sex, and number of components were introduced into the univariate meta-regression as continuous variables. [++] The categorical variables of design, location, type of worksite, quality score, duration, intervention components, and targets of intervention were coded into subgroup categories of dichotomous variables (0,1) and introduced coded into the meta-regressions. ****** The reference, the variable omitted in the meta-regression. **~** Interventions had at least two components each and interventions may have had more than one target outcome. Due to this, multivariate meta-regression were performed for intervention components and targets of intervention as the components or targets could not be analysed independently. In addition, N's will not sum to number of studies. ***** Walt test was conducted for the univariate with 3 or more subgroup categories of dichotomous variables or multivariate models (intervention components and targets of intervention). The **bold** results indicate the significance of the univariate or multivariate (intervention components and targets of intervention) meta-regression based on an alpha of 0.05. Based on these results, multivariate meta-regression were performed (Results presented in Tables 9 and 10).

Table S6. Univariate meta-regressions: Heterogeneity exploration for anthropometric outcomes

	BMI (kg/m^2)		Weight (kg)		Waist Circumference (cm)		Body Fat (%)	
	n	β (95% CI) p of uni-variate	n	β (95% CI) p of uni-variate	n	β (95% CI) p of uni-variate	n	β (95% CI) p of uni-variate
Overall estimate of intervention effects	67	**-0.22 (-0.28, -0.17)** **0.000**	59	**-0.92 (-1.11, -0.72)** **0.000**	37	**-1.47 (-1.96, -0.98)** **0.000**	13	-0.80 (-1.80, -0.21) 0.121
Age[+]								
Years	60	-0.010 (-0.037, 0.017) 0.455	53	-0.031 (-0.102, 0.039) 0.372	35	0.042 (-0.079, 0.162) 0.486	12	0.079 (-0.137, 0.295) 0.432
Sex[+]								
% Males	64	0.002 (-0.003, 0.007) 0.500	57	0.001 (-0.011, 0.013) 0.839	35	-0.004 (-0.024, 0.016) 0.720	12	-0.031 (-0.067, 0.006) 0.092
Number of Components[+]	67	0.010 (-0.040, 0.059) 0.695	59	-0.062 (-0.220, 0.097) 0.440	37	-0.159 (-0.499, 0.180) 0.349	13	0.373 (-0.382, 1.128) 0.300
Design[++]								
Randomised Intervention	41**	-0.394 (-0.564, -0.224) 0.000	35**	-1.362 (-1.858, -0.867) 0.000	18	0.248 (-0.971, 1.466) 0.683	10**	-0.904 (-2.295, 0.487) 0.180
Non-Randomised Intervention	26	0.211 (-0.050, 0.472) 0.111	24	-0.692 (-0.069, 1.452) 0.074	19**	-1.626 (-2.483, -0.765) 0.001	3	-0.963 (-2.568, 4.494) 0.560
Location[++]								
North America (US & Canada)	33**	-0.360 (-0.556, -0.164) 0.000	24**	-1.377 (-2.019, -0.734) 0.000	3	-1.718 (-4.296, 0.860) 0.185	5**	-0.048 (-1.974, 2.070) 0.959
Europe, Australia, New Zealand	21	0.132 (-0.169, 0.432) 0.385	18	0.567 (-0.380, 1.513) 0.235	17**	-1.110 (-1.993, -0.227) 0.015	4	-0.736 (-3.617, 2.144) 0.581
Other (Asia, Latin America, Africa)	13	0.049 (-0.303, 0.400) 0.783	17	0.321 (-0.617, 1.513) 0.409	17	-0.576 (-1.807, 0.655) 0.348	4	-2.080 (-5.218, 1.058) 0.171
Walt test (p value)		0.682*		0.469*		0.338*		0.371*
Type of Workplace[++]								
Office	10	**-0.420 (-0.840, -0.001)** **0.050**	10	**-1.282 (-2.524, -0.040)** **0.043**	11	0.053 (-1.513, 1.619) 0.945	7**	0.106 (-1.364, 1.576) 0.874
Hospital	8	-0.207 (-0.823, 0.408) 0.503	10	-0.448 (-1.529, 0.634) 0.410	4	0.748 (-1.359, 2.856) 0.475	3	-0.983 (-3.489, 1.523) 0.398
School	4	-0.140 (-0.675, 0.394) 0.602	2	-0.589 (-2.963, 1.785) 0.621	1	0.292 (-4.362, 4.946) 0.899	0	-
Factory	13	-0.150 (-0.484, 0.184) 0.373	14	-0.680 (-1.628, 0.268) 0.156	9	-0.810 (-2.464, 0.844) 0.326	2	**-3.771 (-6.499, -0.922)** **0.015**
Mixed and Other[1]	32**	-0.204 (-0.380, -0.029) 0.023	23**	-0.660 (-1.228, -0.093) 0.023	12**	-1.412 (-2.490, -0.335) 0.012	1	-0.006 (-4.224, 4.211) 0.997
Walt test (p value)*		0.2351*		0.177*		0.512*		0.081*
Quality Score[++]								
0-3	27**	-0.257 (-0.432, -0.083) 0.004	34**	-0.799 (-1.314, -0.285) 0.003	22**	-1.512 (-2.307, 0.717) 0.000	6	1.129 (-1.427, 3.686) 0.921
4-5	30	-0.110 (-0.375, 0.155) 0.411	25	-0.597 (-1.361, 0.167) 0.123	15	0.023 (-1.220, 1.266) 0.970	7**	-1.220 (-2.851, 0.411) 0.352
Duration[++]								
0-5 Months	13	-0.199 (-0.614, 0.215) 0.341	18	-0.017 (-0.953, 0.918) 0.970	13	-0.641 (-1.996, 0.715) 0.344	10**	-0.999 (-2.439, 0.442) 0.155

6-12 Months	34**	-0.384 (-0.618, -0.244) 0.000	32**	-1.174 (-1.723, -0.625) 0.000	29**	-1.174 (-2.048, -0.300) 0.001	3	1.073 (-1.962, 4.108) 0.453
13-23 Months	2	0.364 (-0.434, 1.163) 0.365	1	0.684 (-2.666, 4.034) 0.684	0	-	0	-
24+ Months	18	0.262 (-0.019, 0.543) 0.068	8	0.490 (-0.574, 1.554) 0.360	5	-0.657 (-2.402, 1.089) 0.986	0	-
Walt test (p value)*		0.104*		0.416*		0.567*		0.453*
Intervention Components[++] **~**								
Intercep		-0.413 (-0.834, -0.008)		-0.117 (-1.414, 1.179)		-0.755 (-2.520, 1.010)		-1.636 (-6.939, 3.668)
Individual Education	50	-0.066 (-0.406, 0.274) 0.700	44	**-1.117 (-2.165, -0.069) 0.037**	26	-0.448 (-1.854, 0.958) 0.519	9	0.527 (-6.169, 7.223) 0.848
Group Education	42	-0.061 (-0.352, 0.229) 0.673	35	-0.389 (-1.236, 0.459) 0.361	23	0.155 (-1.087, 1.397) 0.900	9	-0.343 (-3.930, 3.243) 0.815
Food Environment	23	-0.266 (-0.749, 0.217) 0.275	17	-0.910 (-2.682, 0.861) 0.307	9	-1.054 (-3.066, 0.958) 0.292	1	3.927 (-4.780, 12.634) 0.875
Labelling and Information	21	0.408 (-0.035, 0.851) 0.070	13	0.651 (-1.206, 2.509) 0.485	8	0.927 (-1.076, 2.930) 0.351	0	-
Screening	17	0.186 (-0.161, 0.532) 0.288	12	0.732 (-0.322, 1.787) 0.169	11	0.348 (-1.155, 1.851) 0.639	1	0.580 (-8.433, 9.592) 0.875
Financial Incentives	14	-0.082 (-0.427, 0.263) 0.638	11	-0.060 (-1.230, 1.110) 0.919	4	-1.961 (-4.212, 0.289) 0.085	2	3.217 (-2.220, 8.653) 0.189
Physical Activity	32	-0.048 (-0.274, 0.370) 0.766	28	0.209 (-0.611, 1.028) 0.611	17	-0.266 (-1.541, 1.009) 0.672	7	-1.647 (-5.540, 2.246) 0.326
Self Awareness	8	-0.211 (-0.656, 0.233) 0.345	5	**-1.860 (-3.617, -0.101) 0.039**	5	-1.802 (-3.896, 0.291) 0.089	0	-
Other[2]	30	0.205 (-0.089, 0.499) 0.167	25	0.231 (-0.623, 1.086) 0.589	14	-0.245 (-1.472, 0.983) 0.686	8	1.450 (-2.698, 5.697) 0.401
Walt test (p value)*		0.383*		0.449*		0.335*		0.577*
Target(s) of Intervention[++] **~**								
Intercep		-0.270 (-0.757, -0.216)		-1.080 (-2.546, 0.385)		-0.226 (-2.217, 1.765)		-1.547 (-6.153, 3.058)
Weight Loss	45	-0.234 (-0.513, 0.045) 0.098	41	-0.360 (-1.280, 0.559) 0.3436	26	0.030 (-1.271, 1.331) 0.963	9	-0.754 (-4.014, 2.506) 0.613
Diet	53	**-0.415 (-0.803, -0.026) 0.037**	43	-0.644 (-1.551, 0.262) 0.160	26	-1.094 (-2.324, 0.136) 0.079	7	1.422 (-1.294, 4.138) 0.266
Physical Activity	53	**0.579 (0.209, 0.949) 0.003**	45	**1.036 (0.068, 2.004) 0.036**	30	1.100 (-2.541, 0.340) 0.130	13	Drop due to collinearity
Other[3]	35	0.022 (-0.289, 0.245) 0.870	30	-0.140 (-0.990, 0.710) 0.743	18	0.656 (-0.557, 1.868) 0.279	8	0.800 (-2.210, 3.809) 0.563
Walt test (p value)*		**0.020***		0.200*		0.129*		0.340*

Abbreviations: body mass index (BMI); number of observations (n). [1] Mixed is defined as a combination of the pre-specified work type whereas, other differs from our pre-specified categories (e.g. a mixed worksite would be a company-wide WWP that targeted both white-collar executives as well as the blue-collar. [2] Other: components not included in previous groups, including employee advisory committees. [3] Other intervention targets included the reduction in CVD risk factors, smoking cessation, stress reduction, diabetes, or cancer prevention. [+] Age, sex, and number of components were introduced into the univariate meta-regression as continuous variables. [++] The categorical variables of design, location, type of worksite, quality score, duration, intervention components, and targets of intervention were coded into subgroup categories of dichotomous variables (0,1) and introduced coded into the meta-regressions. ****** The reference, the variable omitted in the meta-regression. **~** Interventions had at least two components each and interventions may have had more than one target outcome. Due to this, multivariate meta-regression were performed for intervention components and targets of intervention

as the components or targets could not be analysed independently. In addition, N's will not sum to number of studies. ***** Walt test was conducted for the univariate with 3 or more subgroup categories of dichotomous variables or multivariate models (intervention components and targets of intervention). The **bold** results indicate the significance of the univariate or multivariate (intervention components and targets of intervention) meta-regression based on an alpha of 0.05. Based on these results, multivariate meta-regression were performed (Results presented in Tables 9 and 10)

Table S7. Univariate meta-regressions: Heterogeneity exploration for blood pressure and fasting glucose

	n	DBP (mmHg) β (95% CI) p of uni-variate	n	SBP (mmHg) β (95% CI) p of uni-variate	n	Fasting Glucose (mg/dL) β (95% CI) p of uni-variate
Overall estimate of intervention effects						
	41	**-1.11 (-1.78,-0.44) 0.001**	41	**-2.03 (-3.03,-0.78) 0.000**	26	**-1.81 (-3.33,-0.28) 0.020**
Age[+]						
Years	39	-0.082 (-0.210, 0.045) 0.199	39	-0.155 (-0.367, 0.057) 0.147	25	0.232 (-0.196, 0.660) 0.274
Sex[+]						
% Males	39	0.014 (-0.015, 0.043) 0.336	39	-0.014 (-0.061, 0.034) 0.569	24	-0.015 (-0.100, 0.070) 0.724
Number of Components[+]						
	41	-0.223 (-0.537, 0.091) 0.158	41	**-0.640 (-1.181, -0.099) 0.022**	26	0.493 (-0.370, 1.356) 0.250
Design[++]						
Randomised Intervention	22**	-1.506 (-2.566, -0.447) 0.006	22**	-1.761 (-3.563, 0.041) 0.055	12	-0.137 (-4.573, 4.299) 0.950
Non-Randomised Intervention	19	0.779 (-0.718, 2.276) 0.299	19	-0.584 (-3.184, 2.016) 0.652	14**	-1.927 (-4.919, 1.064) 0.196
Location[++]						
North America (US & Canada)	13	-1.387 (-3.280, 0.506) 0.146	13	-1.611 (-4.924, 1.702) 0.331	9	2.748 (-1.787, 7.282) 0.223
Europe, Australia, New Zealand	14**	-0.324 (-1.701, 0.913) 0.546	14**	-1.412 (-3.634, 0.810) 0.017	4	5.808 (-0.593, 12.210) 0.073
Other (Asia, Latin America, Africa)	14	-0.823 (-2.610, 0.965) 0.357	14	-0.470 (-3.553, 2.612) 0.482	13**	-3.631 (-6.475, -0.787) 0.015
Walt test (p value)*		0.336*		0.609*		0.152*
Type of Workplace[++]						
Office	11	-0.797 (-2.790, 1.196) 0.423	11	1.667 (-1.713, 5.046) 0.324	10**	-3.788 (-6.636, -0.939) 0.012
Hospital	6	-1.414 (-4.134, 1.306) 0.299	6	1.587 (-3.020, 6.194) 0.489	3	2.977 (-3.375, 9.329) 0.341
School	1	0.194 (-5.123, 5.512) 0.941	1	3.746 (-5.035, 12.527) 0.393	1	3.628 (-4.812, 12.068) 0.382
Factory	13**	-0.684 (-2.040, 0.671) 0.313	13**	-2.926 (-5.244, -0.608) 0.015	2	-5.795 (-12.508, 0.918) 0.087
Mixed and Other[1]	10	-0.235 (-2.297, 1.828) 0.819	10	0.530 (-3.001, 4.061) 0.763	10	**5.328 (1.205, 9.451) 0.014**
Walt test (p value)*		0.696*		0.753*		**0.010**
Quality Score[++]						
0-3	27**	-0.732 (-1.607, 0.142) 0.098	27**	-1.493 (-3.070, 0.085) 0.063	20**	-0.774 (-3.063, 1.516) 0.492
4-5	14	-1.303 (-2.914, 0.308) 0.110	14	-1.631 (-4.354, 1.093) 0.233	6	**-5.195 (-10.019, -0.370) 0.036**
Duration[++]						
0-5 Months	15	-0.393 (-2.211, 1.425)	15	0.641 (-2.315, 3.597)	8	-1.324 (-6.741, 4.092)

		0.664		0.663		0.617
6-12 Months	17**	-0.943 (-2.168, 0.283)	17**	-1.885 (-3.868, 0.097)	10**	-2.298 (-5.953, 1.358)
		0.128		0.062		0.206
13-23 Months	1	1.443 (-3.047, 5.933)	1	2.085 (-5.610, 9.781)	1	3.698 (-8.591, 15.986)
		0.519		0.586		0.539
24+ Months	8	-0.410 (-2.440, 1.619)	8	-2.092 (-5.532, 1.349)	7	2.090 (-3.494, 7.673)
		0.684		0.226		0.446
Walt test (p value)*		0.836*		0.421*		0.607*
Intervention Components[++] **~**						
Intercep		0.921 (-1.166, 3.009)		2.782 (-0.169, 5.732)		-4.485 (-14.111, 5.140)
Individual Education	29	-1.712 (-3.471, 0.047)	29	**-3.707 (-6.115, -1.299)**	22	2.945 (-5.106, 10.996)
		0.056		**0.004**		0.449
Group Education	25	-1.050 (-2.668, 0.568)	25	-1.908 (-4.108, 0.292)	13	-1.801 (-7.485, 3.883)
		0.195		0.087		0.511
Food Environment	10	-1.949 (-4.158, 0.260)	10	**-4.584 (-7.767, -1.401)**	7	-0.946 (-11.404, 9.513)
		0.082		**0.006**		0.850
Labelling and Information	8	1.211 (-1.197, 3.619)	8	-1.883 (-5.337, 1.571)	4	1.006 (-12.251, 14.263)
		0.313		0.275		0.874
Screening	13	0.289 (-1.545, 2.124)	13	-1.117 (-3.557, 1.324)	6	3.722 (-2.956, 10.400)
		0.750		0.358		0.255
Financial Incentives	9	1.645 (-0.300, 3.590)	9	2.528 (-0.224, 5.281)	2	3.869 (-8.565, 16.303)
		0.095		0.070		0.519
Physical Activity	20	-0.909 (-2.561, 0.743)	20	-0.596 (-2.842, 1.650)	16	2.347 (-4.399, 9.093)
		0.270		0.592		0.472
Self Awareness	5	0.708 (-1.632, 3.048)	5	-1.660 (-4.910, 1.591)	5	-1.347 (-8.876, 6.181)
		0.542		0.306		0.709
Other[2]	20	-0.087 (-1.565, 1.390)	20	1.716 (-0.318, 3.750)	13	-3.118 (-10.805, 4.570)
		0.905		0.095		0.403
Walt test (p value)*		0.116*		**0.001***		0.850*
Target(s) of Intervention[++] **~**						
Intercep		-0.556 (-3.382, 2.270)		-1.254 (-6.033, 3.525)		-1.849 (-12.186, 8.487)
Weight Loss	24	0.149 (-1.687, 1.984)	24	-0.747 (-3.816, 2.322)	16	2.710 (-2.397, 7.817)
		0.870		0.624		0.282
Diet	33	-0.226 (-2.654, 2.201)	33	-1.757 (-5.706, 2.191)	19	-5.107 (-10.604, 0.391)
		0.851		0.373		0.067
Physical Activity	32	-0.403 (-2.574, 1.767)	32	1.494 (-2.114, 5.103)	23	1.956 (-5.647, 9.558)
		0.709		0.407		0.598
Other[3]	27	-0.219 (-2.031, 1.593)	27	-0.189 (-3.301, 2.929)	16	0.088 (-5.448, 5.625)
		0.808		0.903		0.974
Walt test (p value)*		0.984*		0.764*		0.288*

Abbreviations: diastolic blood pressure (DBP); systolic blood pressure (SBP); number of observations (n). **[1]** Mixed is defined as a combination of the pre-specified work type whereas, other differs from our pre-specified categories (e.g. a mixed worksite would be a company-wide WWP that targeted both white-collar executives as well as the blue-collar. **[2]** Other: components not included in previous groups, including employee advisory committees. **[3]** Other intervention targets included the reduction in CVD risk factors, smoking cessation, stress reduction, diabetes, or cancer prevention. [+] Age, sex, and number of components were introduced into the univariate meta-regression as continuous variables. [++] The categorical variables of design, location, type of worksite, quality score, duration, intervention components, and targets of intervention were coded into subgroup categories of dichotomous variables (0,1) and introduced coded into the meta-regressions. ****** The reference, the variable omitted in the meta-regression. **~** Interventions had at

least two components each and interventions may have had more than one target outcome. Due to this, multivariate meta-regression were performed for intervention components and targets of intervention as the components or targets could not be analysed independently. In addition, N's will not sum to number of studies. ***** Walt test was conducted for the univariate with 3 or more subgroup categories of dichotomous variables or multivariate models (intervention components and targets of intervention). The **bold** results indicate the significance of the univariate or multivariate (intervention components and targets of intervention) meta-regression based on an alpha of 0.05. Based on these results, multivariate meta-regression were performed (Results presented in Tables 9 and 10).

Table S8. Univariate meta-regressions: Heterogeneity exploration for plasma lipids

	n	**HDL (mg/dL)** β (95% CI) p of uni-variate	n	**LDL (mg/dL)** β (95% CI) p of uni-variate	n	**Triglycerides (mg/dL)** β (95% CI) p of uni-variate	n	**Total Cholesterol (mg/dL)** β (95% CI) p of uni-variate
Overall estimate of intervention effects								
	32	**1.11 (0.48, 1.74)** **0.001**	22	**-5.18 (-7.83, -2.53)** **0.000**	26	**-5.38 (-9.18, -1.56)** **0.005**	36	**-1.75 (-2.59, -0.91)** **0.000**
Age[+]								
	31	-0.098 (-0.339, 0.142) 0.410	21	-0.207 (-0.623, 0.208) 0.310	25	0.146 (-0.0907, 1.199) 0.777	24	-0.232 (-0.672, 0.207) 0.289
Sex[+]								
% Males	30	-0.013 (-0.062, 0.035) 0.579	20	0.040 (-0.059, 0.139) 0.406	24	0.141 (-0.987, 0.371) 0.213	35	0.027 (-0.060, 0.114) 0.530
Number of Components[+]								
	32	-0.045 (-0.854, 0.764) 0.910	26	-0.473 (-1.892, 0.945) 0.494	26	1.938 (-0.465, 4.341) 0.109	36	0.019 (-0.900, 0.938) 0.966
Design[++]								
Randomised Intervention	15	-1.222 (-3.938, 1.494) 0.366	11**	-5.859 (-9.850, -1.868) 0.006	12	4.033 (-7.238, 15.303) 0.467	17	-1.958 (-6.718, 2.802) 0.409
Non-Randomised Intervention	17**	1.602 (-0.193, 3.397) 0.078	11	1.346 (-4.235, 6.926) 0.620	14*	-7.483 (-14.408, -0.558) 0.035	19**	-2.535 (-5.697, 0.628) 0.113
Location[++]								
North America (US & Canada)	8	-1.488 (-5.035, 2.058) 0.398	6	-6.102 (-12.274, 0.070) 0.052	7	-0.065 (-15.345, 15.215) 0.993	14**	-2.944 (-6.961, 1.074) 0.146
Europe, Australia, New Zealand	8	-0.509 (-3.937, 2.920) 0.764	6	**-6.962 (-12.823, -1.101)** **0.022**	5	1.961 (-13.523, 17.446) 0.796	9	-1.361 (-7.625, 4.902) 0.661
Other (Asia, Latin America, Africa)	16**	1.490 (-0.363, 3.343) 0.111	10**	-1.888 (-5.278, 1.501) 0.258	14**	-6.680 (-14.296, 0.936) 0.083	13	-0.323 (-5.941, 5.295) 0.908
Walt test (pvalue)*		0.694*		**0.036***		0.964*		0.903*
Type of Workplace[++]								
Office	11**	2.341 (-0.042, 4.721) 0.054	8**	-5.588 (-10.003, -1.172) 0.016	10**	-14.224 (-23.162, -5.286) 0.003	9	-1.102 (-7.455, 5.252) 0.726
Hospital	4	-2.878 (-8.083, 2.326) 0.266	3	-5.310 (-15.166, 4.545) 0.271	4	11.172 (-8.660, 31.003) 0.255	5	-4.721 (-13.687, 4.245) 0.291
School	1	-2.380 (-9.937, 5.176) 0.523	1	5.678 (-5.390, 16.746) 0.294	1	-14.094 (-6.812, 35.000) 0.176	1	2.409 (-10.884, 15.703) 0.714
Factory	6	-1.631 (-5.486, 2.225) 0.393	3	0.784 (-7.500, 9.068) 0.844	3	-15.317 (-2.247, 32.881) 0.084	7	-1.998 (-8.508, 4.513) 0.536
Mixed and Other[1]	10	-1.903 (-5.412, 1.606) 0.276	7	1.392 (-5.194, 7.978) 0.661	8	-11.807 (-0.652, 24.265) 0.062	14**	-2.404 (-6.173, 1.364) 0.203
Walt test (pvalue)*		0.577*		0.578*		0.176*		0.732*
Quality Score[++]								
0-3	22**	1.630 (0.059, 3.201) 0.042	16**	-4.799 (-8.013, -1.584) 0.005	19**	-7.102 (-13.216, -0.987) 0.025	21**	-3.212 (-6.257, -0.167) 0.039
4-5	10	-1.891 (-4.787, 1.004) 0.192	6	-1.604 (-8.230, 5.022) 0.619	7	5.594 (-8.298, 19.486) 0.414	15	-0.492 (-5.398, 4.413) 0.840
Duration[++]								

0-5 Months	11	-0.686 (-4.042, 2.669) 0.678	7	2.545 (-3.793, 8.882) 0.411	9	**-15.545 (-26.739, -4.350)** **0.009**	9	0.663 (-5.921, 7.246) 0.839
6-12 Months	13**	1.701 (-0.549, 3.951) 0.133	11**	-6.864 (-10.747, -2.982) 0.002	12**	-1.383 (-7.977, 5.211) 0.668	14**	-4.095 (-8.116, -0.074) 0.046
13-23 Months	1	-2.001 (-9.865, 5.862) 0.606	0	-	0	-	2	5.210 (-5.373, 15.792) 0.324
24+ Months	7	-1.403 (-5.014, 2.208) 0.433	4	4.699 (-2.538, 11.936) 0.190	5	-0.956 (-11.672, 9.760) 0.855	11	0.590 (-5.157, 6.338) 0.836
Walt test (pvalue)*		0.853*		0.383*		**0.022***		0.799*
Intervention Components[++] **~**								
Intercep		4.584 (0.798, 8.370)		-4.005 (-9.752, 1.751)		-25.138 (-46.272, -4.003)		-5.039 (-13.188, 3.110)
Individual Education	22	-2.633 (-5.684, 0.418) 0.087	15	-0.061 (-5.015, 4.894) 0.979	19	13.533 (-5.484, 32.551) 0.151	27	-0.549 (-6.577, 5.478) 0.853
Group Education	19	-0.172 (-2.877, 2.532) 0.896	14	-0.134 (-4.806, 4.538) 0.951	16	0.753 (-13.690, 15.196) 0.913	21	-2.460 (-8.145, 3.439) 0.382
Food Environment	4	**6.049 (1.415, 10.682)** **0.013**	3	**-16.619 (-25.731, -7.732)** **0.002**	4	-2.424 (-29.563, 24.715) 0.852	9	-5.253 (-13.944, 3.439) 0.225
Labelling and Information	3	-0.558 (-5.080, 3.963) 0.800	1	-6.892 (-17.517, 3.732) 0.183	1	13.742 (-30.7441, 58.227) 0.522	8	4.504 (-4.623, 13.630) 0.320
Screening	13	-2.577 (-5.641, 0.488) 0.095	9	-1.526 (-6.388, 3.336) 0.507	9	10.754 (-8.499, 30.007) 0.254	16	3.873 (-1.550, 9.295) 0.154
Financial Incentives	3	1.807 (-2.953, 6.568) 0.439	2	7.165 (-1.795, 16.125) 0.107	2	2.645 (-29.923, 35.213) 0.865	3	3.383 (-6.776, 13.542) 0.500
Physical Activity	16	-0.265 (-3.090, 2.560) 0.848	10	4.091 (-1.137, 9.319) 0.114	14	1.918 (-15.417, 19.252) 0.818	17	1.879 (-6.778, 7.895) 0.527
Self Awareness	6	-0.212 (-3.421, 2.996) 0.892	5	2.023 (-3.233, 7.278) 0.418	5	2.718 (-15.872, 21.308) 0.761	6	0.559 (-6.778, 7.895) 0.877
Other[2]	15	-2.420 (-5.355, 0.515) 0.101	11	-2.234 (-7.266, 2.797) 0.352	12	4.034 (-13.442, 21.509) 0.631	19	0.873 (-5.250, 6.998) 0.772
Walt test (pvalue)*		0.186*		**0.019***		0.827*		0.621*
Target(s) of Intervention[++] **~**								
Intercep		1.396 (-4.616, 7.408)		-11.997 (-33.213, 9.218)		-26.533 (-47.779, 5.287)		-2.548 (-14.368, 9.272)
Weight Loss	17	-1.382 (-4.435, 1.580) 0.347	13	4.448 (-1.859, 10.755) 0.155	15	0.072 (-10.629, 10.773) 0.989	19	**5.910 (0.874, 10.947)** **0.023**
Diet	24	1.015 (-2.483, 4.514) 0.556	17	-1.906 (-9.790, 5.977) 0.617	19	7.899 (-5.169, 20.966) 0.223	31	1.299 (-6.074, 8.673) 0.722
Physical Activity	28	0.665 (-3.625, 4.956) 0.753	21	4.830 (-11.403, 21.063) 0.538	23	7.144 (-10.420, 24.708) 0.407	31	-6.499 (-13.316, 0.318) 0.061
Other[3]	21	-1.392 (-4.664, 1.880) 0.390	13	1.456 (-5.422, 8.334) 0.661	17	**13.908 (2.360, 25.456)** **0.021**	25	0.408 (-5.029, 5.845) 0.879
Walt test (pvalue)*		0.723*		0.618*		0.16*		0.114*

Abbreviations: high density lipoprotein cholesterol (HDL); low density lipoprotein cholesterol (LDL); number of observations (n). **[1]** Mixed is defined as a combination of the pre-specified work type whereas, other differs from our pre-specified categories (e.g. a mixed worksite would be a company-wide WWP that targeted both white-collar executives as well as the blue-collar. **[2]** Other: components not included in previous groups, including employee advisory committees. **[3]** Other intervention targets included the reduction in CVD risk factors, smoking cessation, stress reduction, diabetes, or cancer prevention. [+] Age, sex, and number of components were introduced into the univariate meta-regression as continuous variables. [++] The categorical variables of design, location, type of worksite, quality score, duration, intervention components, and targets of intervention were coded into subgroup categories of dichotomous variables (0,1) and introduced coded into the meta-regressions. ****** The reference, the variable omitted in the

meta-regression. ~ Interventions had at least two components each and interventions may have had more than one target outcome. Due to this, multivariate meta-regression were performed for intervention components and targets of intervention as the components or targets could not be analysed independently. In addition, N's will not sum to number of studies. ***** Walt test was conducted for the univariate with 3 or more subgroup categories of dichotomous variables or multivariate models (intervention components and targets of intervention). The **bold** results indicate the significance of the univariate or multivariate (intervention components and targets of intervention) meta-regression based on an alpha of 0.05. Based on these results, multivariate meta-regression were performed (Results presented in Tables 9 and 10).

Table S9. Multivariate meta-regressions: Dietary habits and anthropometric outcomes

	Fruits & vegetables (serv/day) β (95% CI) p of uni-variate	**Fruits (serv/day)** β (95% CI) p of multi-variate	**Vegetables (serv/day)** β (95% CI) p multi-variate	**Total Fat (% energy intake)** β (95% CI) p multi-variate	**BMI (kg/m^2)** β (95% CI) p multi-variate	**Weight (kg)** β (95% CI) p multi-variate
Overall estimate of intervention effects	**0.27 (0.16, 0.37)** **0.000**	**0.20 (0.11, 0.28)** **0.001**	0.03 (-0.04, 0.10) 0.389	**- 1.18 (-1.78, -0.58)** **0.000**	**-0.22 (-0.28, -0.17)** **0.000**	**-0.92 (-1.11, -0.72)** **0.000**
Intercept						
	0.140 (-0.188, 0.468) 0.375	0.412 (0.195, 0.628) 0.002	-0.087 (-0.128, -0.047) 0.001	-0.580 (-3.622, 2.463) 0.680	-0.473 (-0.799, -0.147) 0.005	-0.994 (-1.975, -0.012) 0.047
Sex[+]						
% Males				-0.014 (-0.045, 0.017) 0.323		
Number of Components[+]						
		-0.048 (-0.075, -0.013) 0.010				
Type of Workplace[++]						
Office		3.336 (0.341, 6.330) 0.032			-0.330 (-0.715, 0.055) 0.092	-1.046 (-2.150, 0.058) 0.063
Hospital						
School						
Factory						
Mixed and Other[1]						
Intervention Components[++]						
Individual Education						-1.010 (-1.906, -0.113) 0.028
Group Education	0.112 (-0.269, 0.493) 0.540					
Food Environment						
Labelling and Information				-1.087 (-2.331, 0.158) 0.080		
Screening			**0.251 (0.130, 0.372)** **0.001**			
Financial Incentives						
Physical Activity				0.625 (-1.287, 2.537) 0.483		
Self Awareness						1.591 (-3.019, -0.164) 0.030
Other[2]				-0.333 (-1.738, 1.072) 0.609		
Target(s) of Intervention[++]						
Weight Loss	-0.401 (-0.871, 0.069) 0.089			0.431 (-1.418, 2.281) 0.615		
Diet					-0.295 (-0.669, 0.079) 0.120	
Physical Activity	0.375 (-0.101, 0.850) 0.113				0.552 (0.183, 0.922) 0.004	-1.207 (0.321, 2.093) 0.008

Other[3]	0.118 (-0.027, 0.264) 0.101	0.038 (0.133, 0.208) 0.636	1.894 (0.591, 3.197) 0.009

Abbreviations: body mass index (BMI); servings/day (serv/day); number of observations (n). **[1]** Mixed is defined as a combination of the pre-specified work type whereas, other differs from our pre-specified categories (e.g. a mixed worksite would be a company-wide WWP that targeted both white-collar executives as well as the blue-collar. **[2]** Other: components not included in previous groups, including employee advisory committees. **[3]** Other intervention targets included the reduction in CVD risk factors, smoking cessation, stress reduction, diabetes, or cancer prevention. [+] Age, sex, and number of components were introduced into the univariate meta-regression as continuous variables. [++] The categorical variables of design, location, type of worksite, quality score, duration, intervention components, and targets of intervention were coded into subgroup categories of dichotomous variables (0,1) and introduced coded into the meta-regressions. To correct for the multiple comparisons, an alpha of 0.001 was used. Based on this, significant results are presented in **bold**.

Table S10. Multivariate meta-regressions: Cardiometabolic risk factors

	SBP (mmHg) β (95% CI) p multi-variate	**Fasting Glucose (mg/dL)** β (95% CI) p multi-variate	**LDL (mg/dL)** β (95% CI) p multi-variate	**Triglycerides (mg/dL)** β (95% CI) p multi-variate
Overall estimate of intervention effects	**-2.03 (-3.03,-0.78)** **0.000**	**-1.81 (-3.33,-0.28)** **0.020**	**-5.18 (-7.83, -2.53)** **0.000**	**-5.38 (-9.18, -1.56)** **0.005**
Intercept	1.347 (-1.338, 4.034) 0.316	-2.689 (-5.364, -0.014) 0.049	-1.946 (-4.137, 0.244) 0.078	-5.849 (-13.681, 1.982) 0.136
Number of Components[+]	-0.005 (-0.620, 0.609) 0.986			
Location[++]				
North America (US & Canada)				
Europe, Australia, New Zealand			-6.217 (-10.482, -1.952) 0.007	
Other (Asia, Latin America, Africa)				
Type of Workplace[++]				
Office				
Hospital				
School				
Factory				
Mixed and Other[1]		4.587 (0.603, 8.531) 0.025		
Quality Score[++]				
0-3				
4-5		-3.912 (-8.472, 0.650) 0.089		
Duration[++]				
0-5 Months				-12.058 (-22.357, -1.758) 0.024
6-12 Months				
13-23 Months				
24+ Months				
Intervention Components[++]				
Individual Education	-0.3.101 (-5.931, -0.270) 0.033			
Group Education				
Food Environment	-4.484 (-7.284, -1.683) 0.003		**-11.571 (-17.247, -5.894)** **0.000**	
Labelling and Information				
Screening				
Financial Incentives				
Physical Activity				
Self Awareness				

Other[2]	
Target(s) of Intervention[++]	
Weight Loss	
Diet	
Physical Activity	
Other[3]	5.835 (-3.050, 14.720) 0.187

Abbreviations: systolic blood pressure (SBP); low density lipoprotein cholesterol (LDL); number of observations (n). [1] Mixed is defined as a combination of the pre-specified work type whereas, other differs from our pre-specified categories (e.g. a mixed worksite would be a company-wide WWP that targeted both white-collar executives as well as the blue-collar. [2] Other: components not included in previous groups, including employee advisory committees. [3] Other intervention targets included the reduction in CVD risk factors, smoking cessation, stress reduction, diabetes, or cancer prevention. [+] Age, sex, and number of components were introduced into the univariate meta-regression as continuous variables. [++] The categorical variables of design, location, type of worksite, quality score, duration, intervention components, and targets of intervention were coded into subgroup categories of dichotomous variables (0,1) and introduced coded into the meta-regressions. To correct for the multiple comparisons, an alpha of 0.001 was used. Based on this, significant results are presented in **bold**.

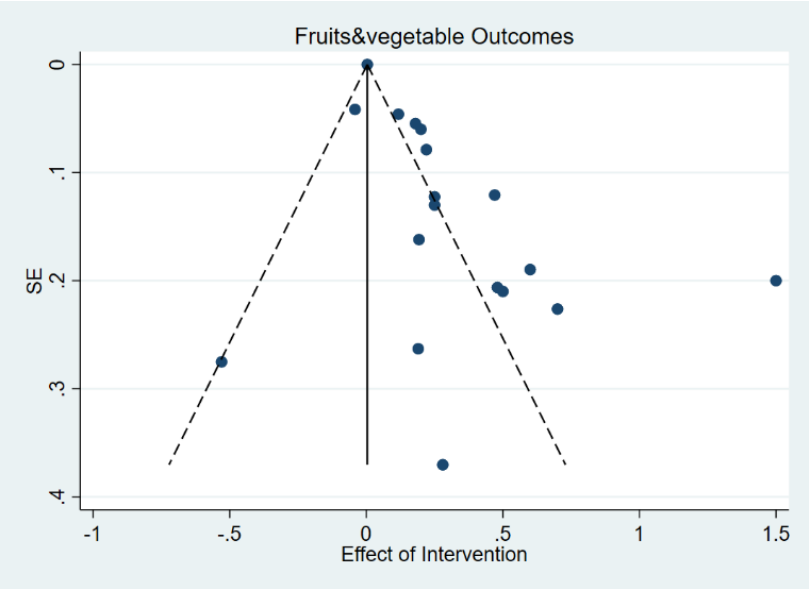

Fig. S21. Funnel plot fruit and vegetable consumption

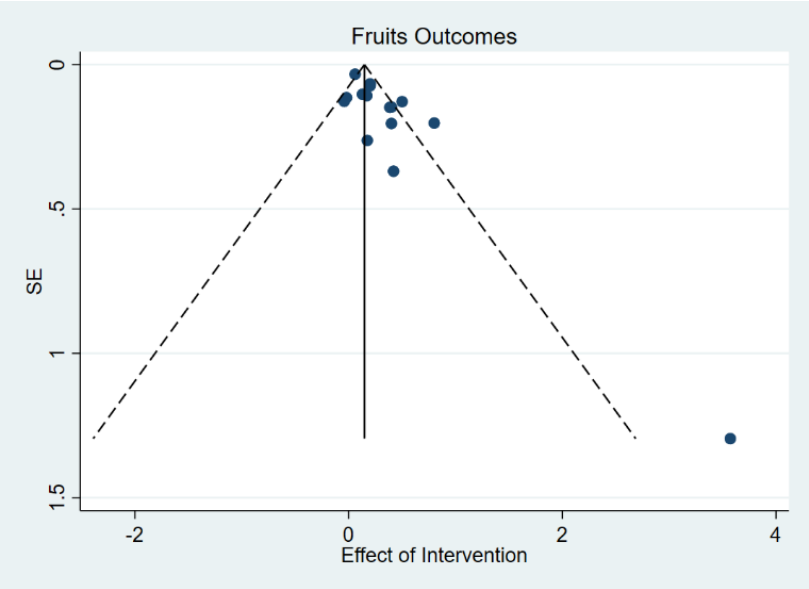

Fig. S22. Funnel plot fruit intake

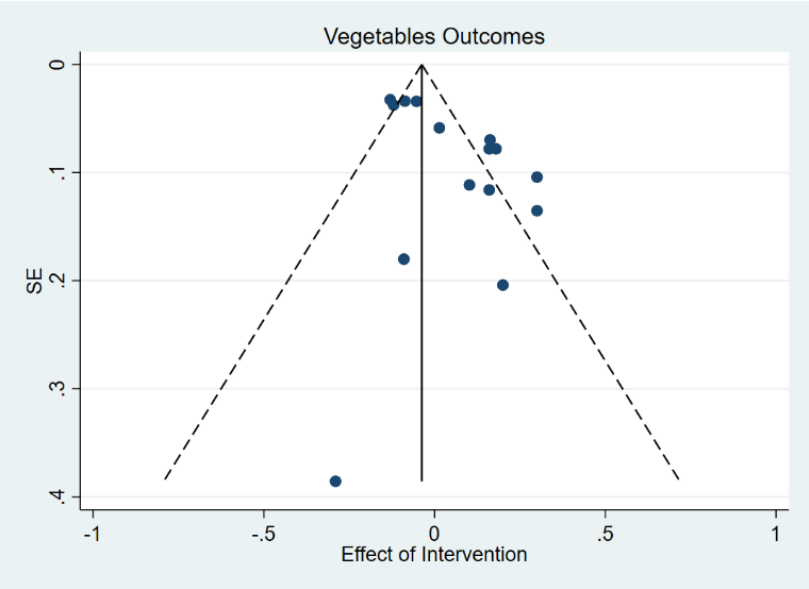

Fig. S23. Funnel plot vegetable consumption

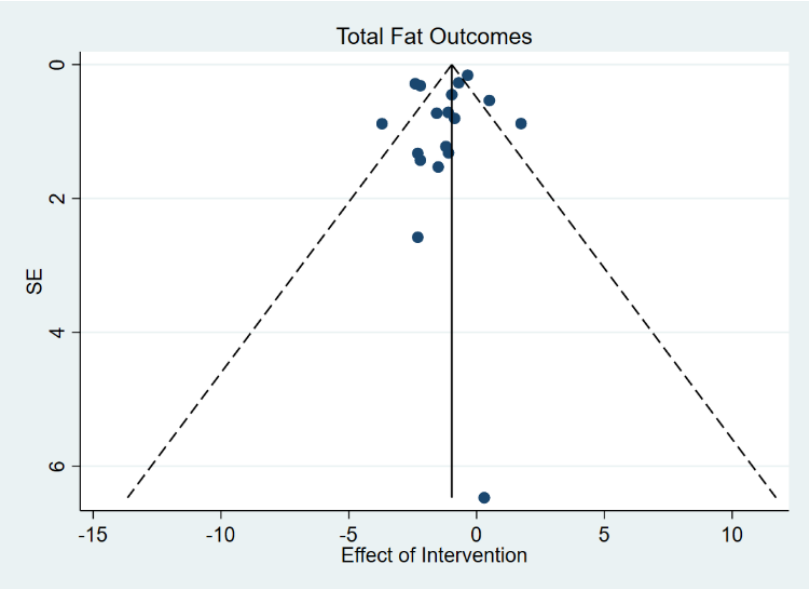

Fig. S24. Funnel plot total fat intake

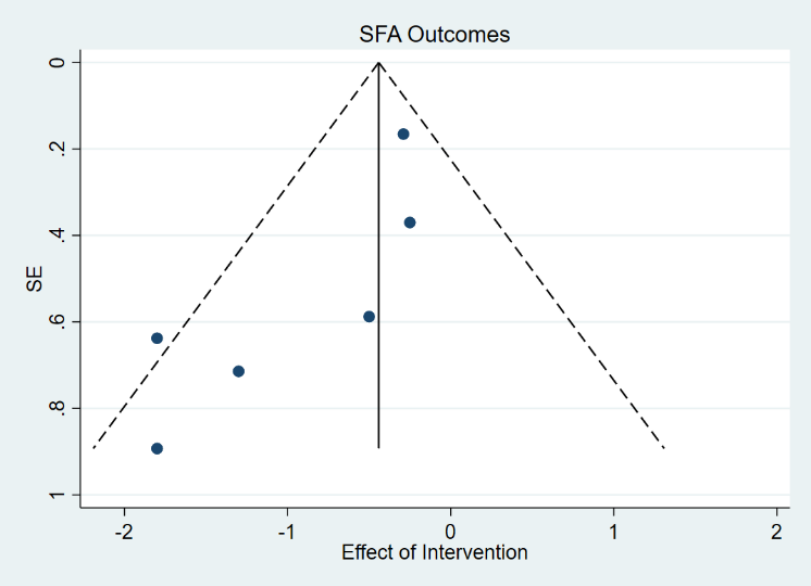

Fig. S25. Funnel plot saturated fat intake

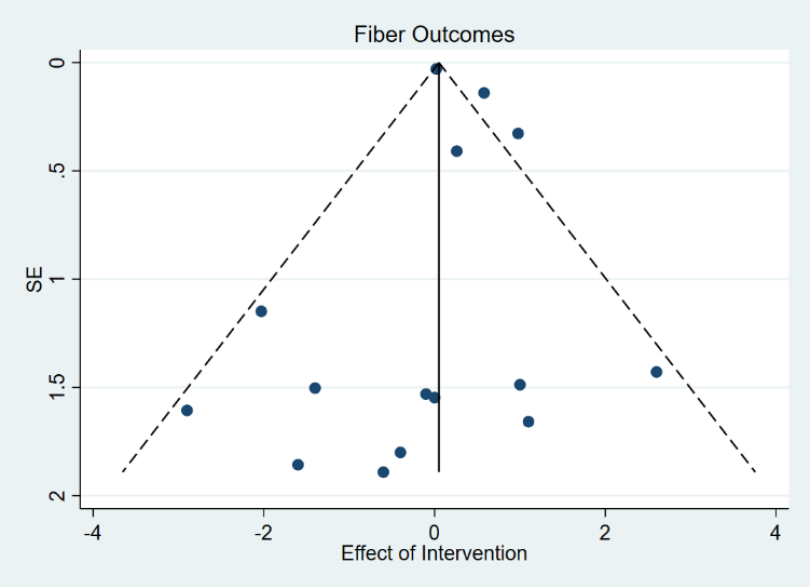

Fig. S26. Funnel plot fibre intake

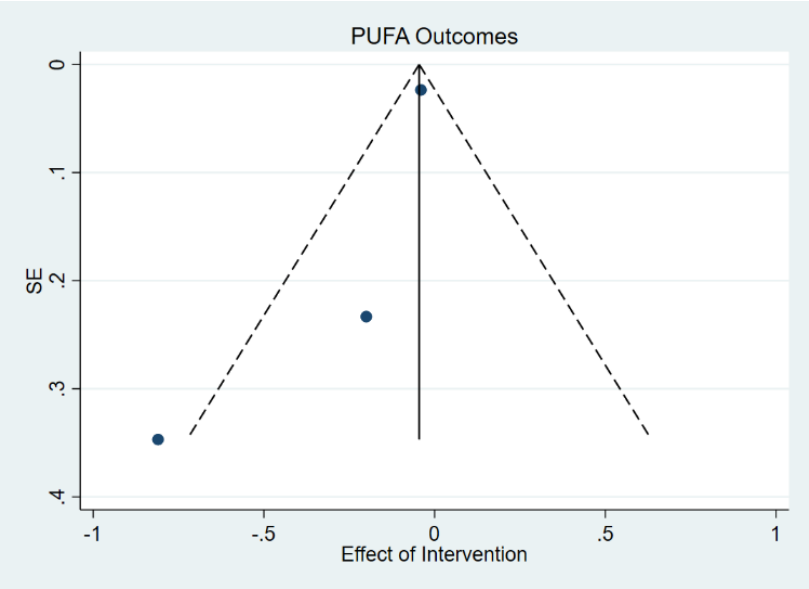

Fig. S27. Funnel plot PUFA intake

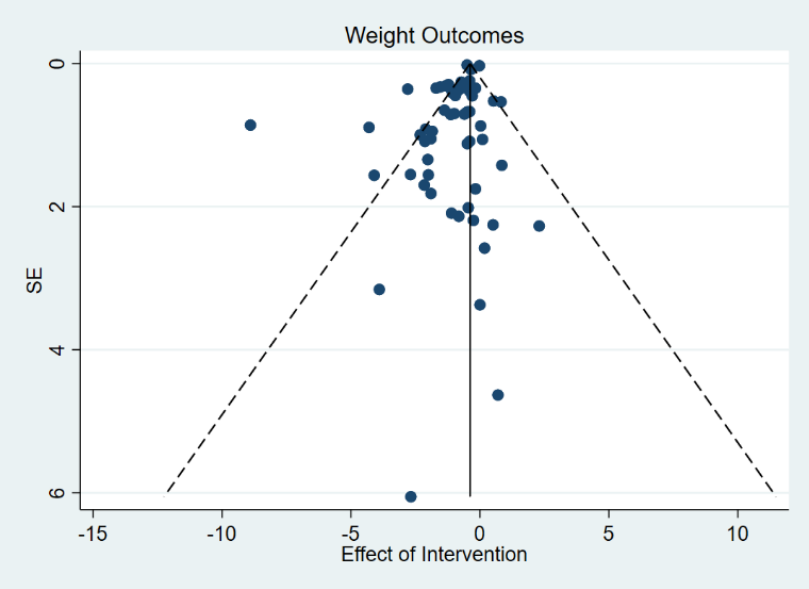

Fig. S28. Funnel plot weight

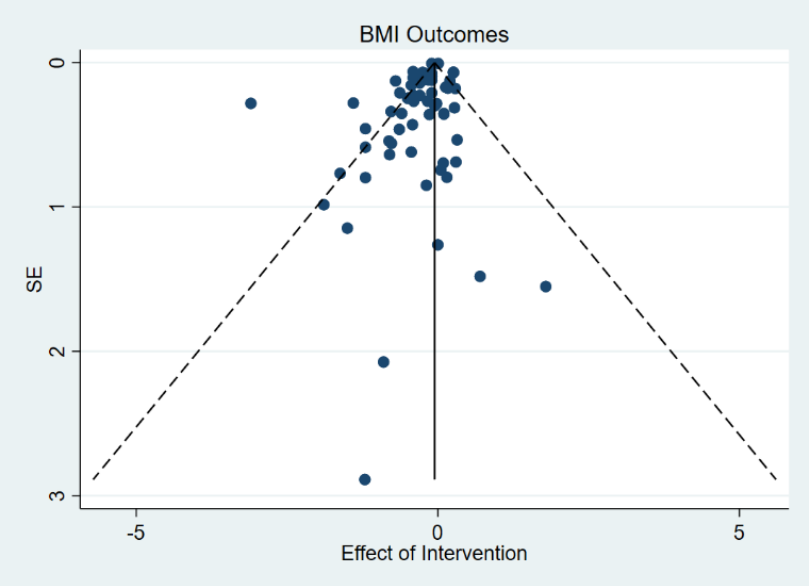

Fig. S29. Funnel plot body mass index (BMI)

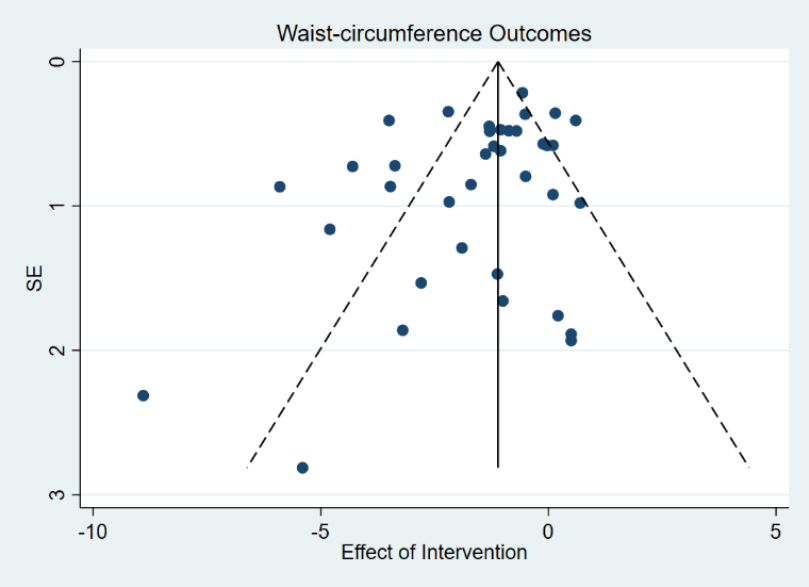

Fig. S30. Funnel plot waist circumference

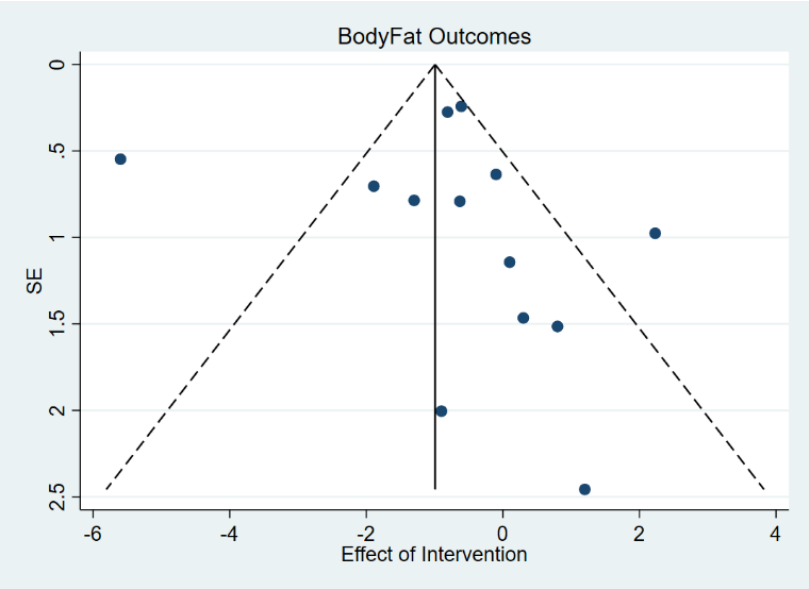

Fig. S31. Funnel plot body fat %

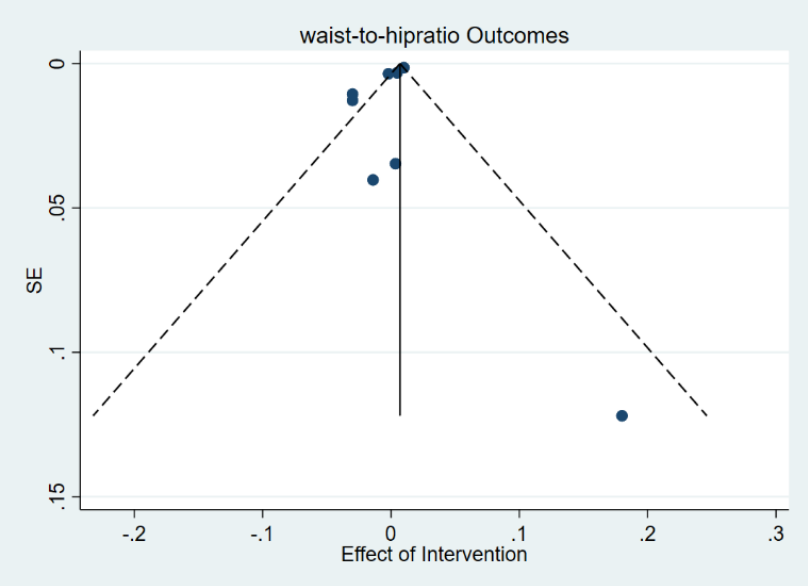

Fig. S32. Funnel plot waist-to-hip ratio

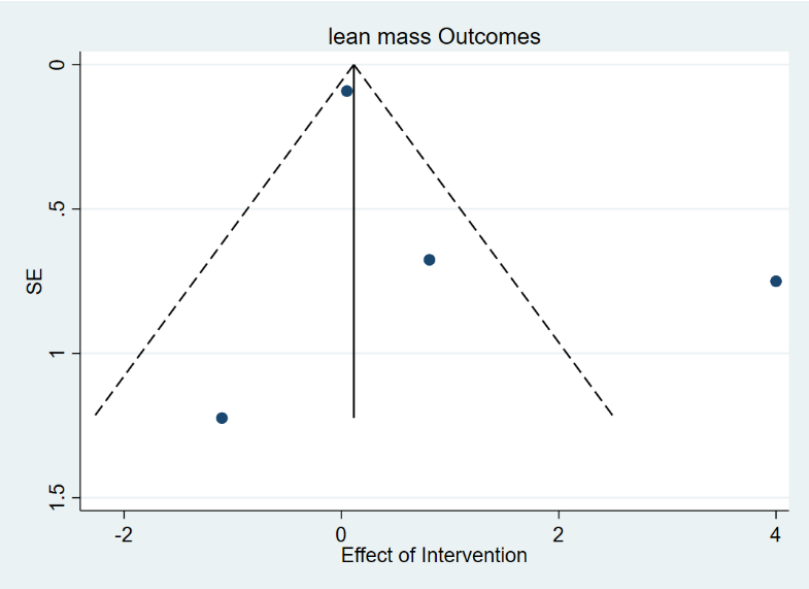

Fig. S33. Funnel plot % lean mass

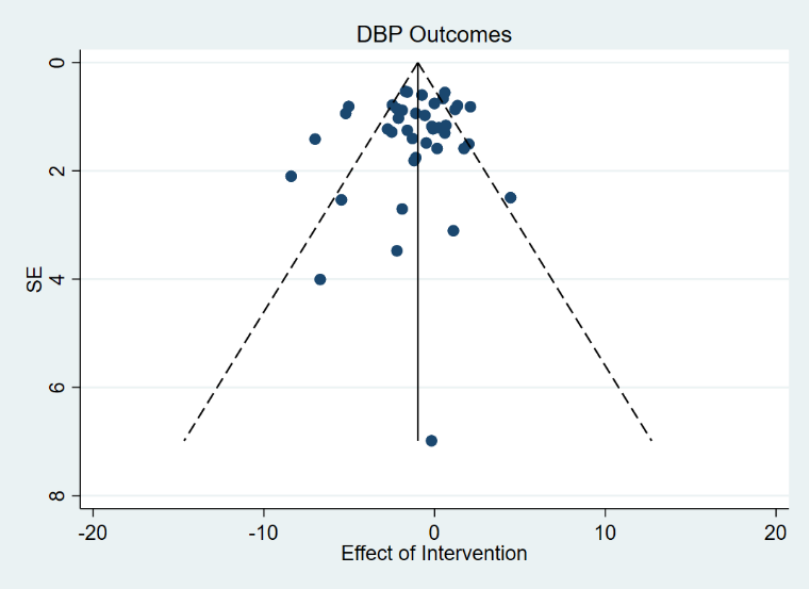

Fig. S34. Funnel plot Diastolic blood pressure

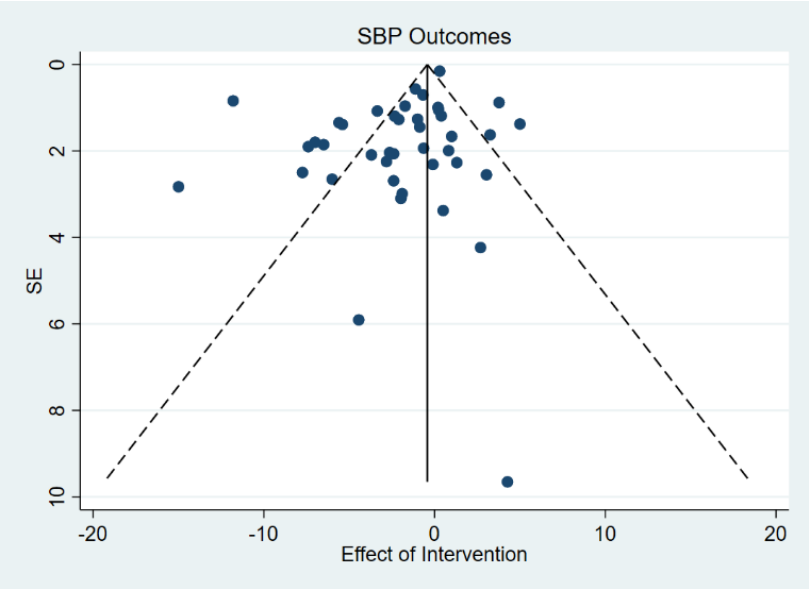

Fig. S35. Funnel plot Systolic blood pressure

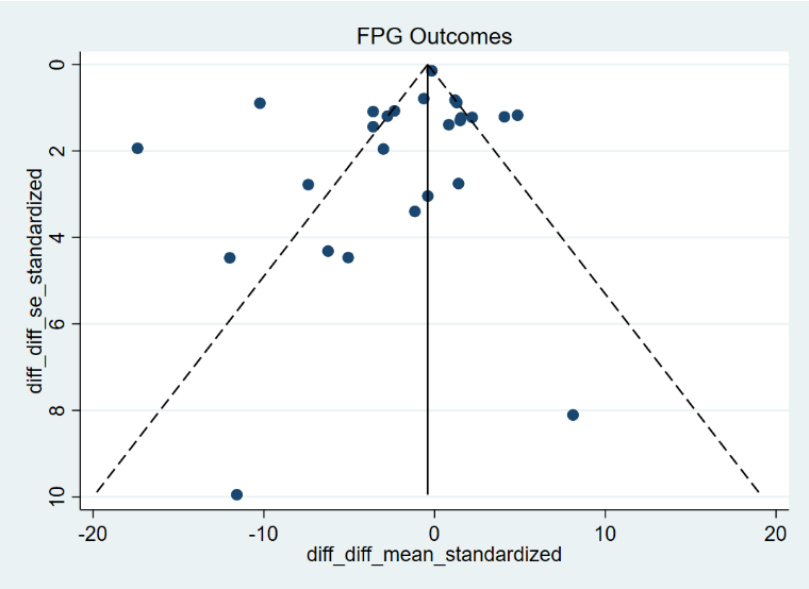

Fig. S36. Funnel plot fasting plasma glucose

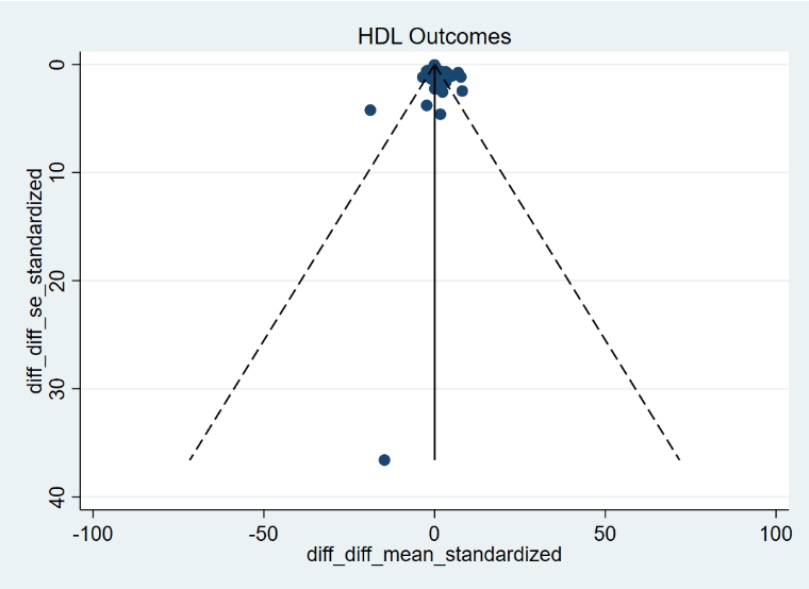

Fig. S37. Funnel plot HDL-cholesterol

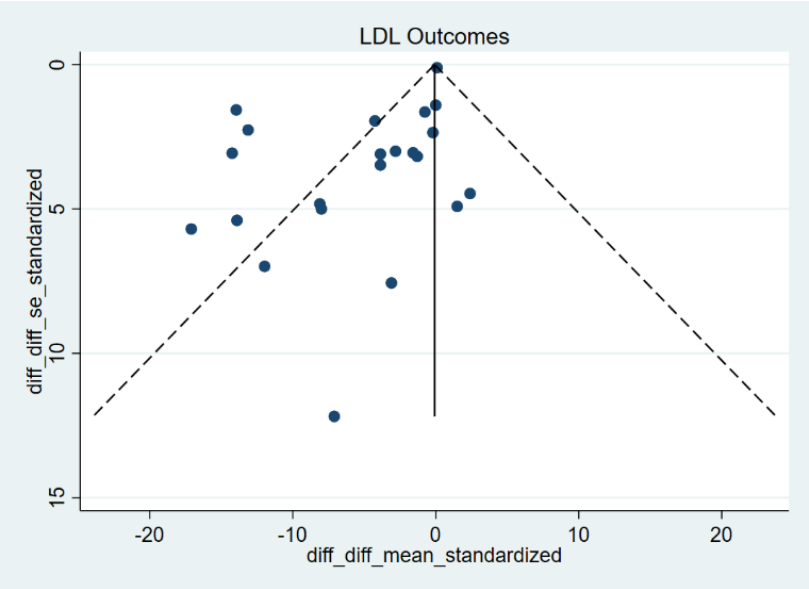

Fig. S38. Funnel plot LDL-cholesterol

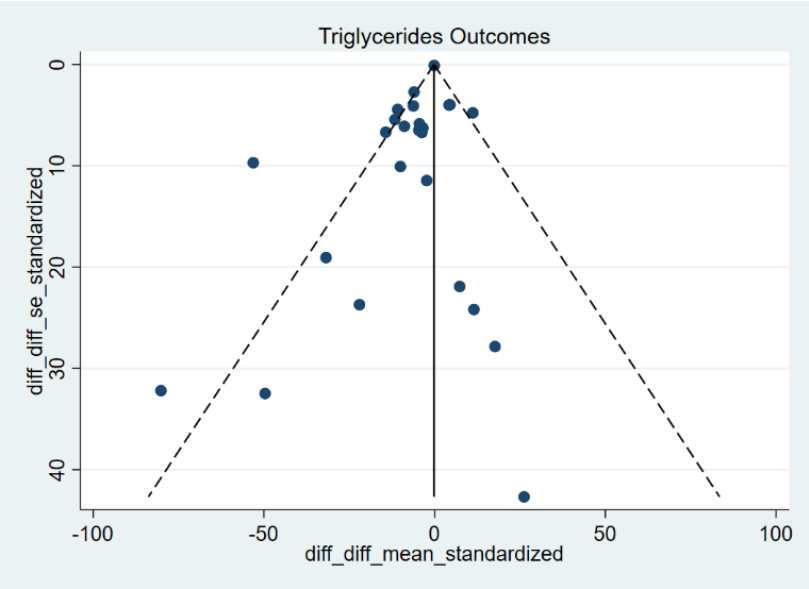

Fig. S39. Funnel plot triglycerides

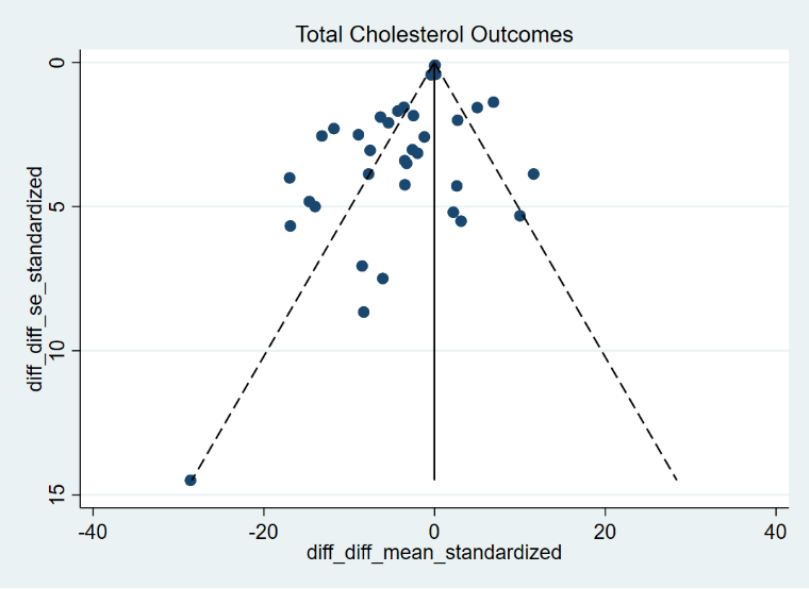

Fig. S40. Funnel plot total cholesterol

Table S11. Assessment of small study effects by comparison between the observed vs corrected pooled effect sizes

Outcome, units	No. of Studies (No. of intervention groups) *	Observed pooled effect size++ *(95% CI)*	No. imputed observations **	No. total number of studies (observed + corrected)**	Corrected pooled effect size *(95% CI)***
Dietary Habits					
Fruits and vegetables, serv/d	16 (18)	**0·27 (0·16, 0·37)**	8	26	0·05 (-0·05, 0·16)
Fruits, serv/d	13 (15)	**0·20 (0·11, 0·28)**	6	21	**0·12 (0·11, 0·28)**
Vegetables, serv/d	12 (14)	0·03 (-0·04, 0·10)	5	19	-0·06 (-0·13, 0·02)
Saturated fat, % energy	4 (6)	**-0·70 (-1·22, -0·19)**	3	9	-0·31 (-0·87, 0·25)
Anthropometrics					
Body mass index, kg/m^2	57 (67)	**-0·22 (-0·28, -0·17)**	19	86	**-0·12 (-0·18, -0·06)**
Body weight, kg	47 (59)	**-0·92 (-1·11, -0·72)**	17	76	**-0·52 (-0·72, -0·31)**
Cardiometabolic Risk Factors					
SBP, mmHg	34 (41)	**-2·03 (-3·16, -0·89)**	11	52	-0·06 (-1·31, 1·20)
LDL cholesterol, mg/dL	20 (22)	**-5·18 (-7·83, -2·53)**	10	32	-0·41 (-3·00, 2·18)
Triglycerides, mg/dL	23 (26)	**-5·38 (-9·18, -1·59)**	6	32	-2·14 (-6·39, 2·11)
Total cholesterol, mg/dL	32 (36)	**-1·75 (-2·59, -0·91)**	11	36	-0·30 (-1·20, 0·59)

*Abbreviations: systolic blood pressure (SBP); low density lipoprotein (LDL); Servings/day (serv/d). *Some studies included more than 2 arms providing more than one intervention group per study++ Observed pooled effect sizes were calculated using inverse-variance random-effects meta-analysis. **Trim-and-fill method for correction of publication bias.*

Table S12. Sensitivity analysis for randomised controlled trials: Pooled estimates of the effect (change) of WWPs on dietary habits, anthropometric measurements and clinical parameters

Outcome, units	No. of Studies (No. of intervention groups)	Primary specified target[+] *(%)*	Duration, *months*[**]	Pooled effect size[++] *(95% CI)*	I2, *%*	P asymmetry (Egger´s Test)
Dietary Habits						
Fruits and vegetables, serv/d	13 (15)	100%[1]	16.8 ± 9.2	**0.34 (0.21, 0.47)**	90.3	**0.000**
Fruits, serv/d	11(13)	100%[1]	5.6 ± 5.3	**0. 20 (0.12, 0.28)**	53.6	**0.013**
Vegetables, serv/d	8 (10)	100%[1]	6.0 ± 5.9	0.02 (-0.06, 0.10)	78.7	**0.012**
Fibre, g/d	6 (11)	100%[1]	12.8 ± 7.5	0.28 (-0.13, 0.70)	65.9	0.660
Total Fats, % energy	10 (12)	100%[1]	11.5 ± 8.2	**-1.09 (-1.79, -0.38)**	86.8	0.649
Anthropometrics						
Body mass index, kg/m^2	37 (41)	73%[2,3]	11.4 ± 9.0	**-0.37 (-0.49, -0.24)**	84.7	**0.008**
Body weight, kg	30 (35)	77%[3]	6.8 ± 4.8	**-1.32 (-1.72, -0.92)**	79.6	**0.005**
Waist circumference, cm	17 (18)	83%[3]	5.2 ± 2.5	**-1.31 (-1.88, -0.74)**	75	0.130
Body fat, %	9 (10)	100%[3]	4.2 ± 2.3	-0.93 (-2.04, 0.18)	90.1	0.983
Waist-to-hip, ratio	6 (8)	88%[4]	10.4 ± 12.6	-0.00 (-0.01, 0.00)	79.8	0.172
Lean mass, kg	4 (4)	100%[3]	3.3 ± 0.5	1.01 (-0.82, 2.83)	89.8	0.449
Cardiometabolic Risk Factors						
SBP, mmHg	20 (22)	82%[4]	5.9 ± 4.0	**-1.50 (-2.59, -0.41)**	84.9	**0.014**
DBP, mmHg	20 (22)	82%[4]	5.9 ± 4.0	**-1.51 (-2.63, -0.39)**	76.8	0.826
Fasting glucose, mg/dL	12 (12)	83%[3]	7.3 ± 4.7	-0.97 (-2.27, 0.33)	62.6	0.132
HDL cholesterol, mg/dL	15 (15)	80%[3]	6.6 ± 4.5	0.58 (-0.74, 1.90)	89.4	0.567
LDL cholesterol, mg/dL	11 (11)	91%[3]	6.4 ± 3.4	**-5.97 (-10.63, -1.30)**	91.6	**0.012**
Triglycerides, mg/dL	12 (12)	83%[3]	6.1 ± 3.5	-2.39 (-8.46, 3.69)	56.8	0.260
Total cholesterol, mg/dL	17 (17)	88%[4]	7.9 ± 5.8	**-1.00 (-1.81, -0.19)**	76.9	**0.002**

Abbreviations: Diastolic blood pressure (DBP); systolic blood pressure (SBP); high density lipoprotein (HDL); low density lipoprotein (LDL); Servings/day (serv/d), Heterogeneity test (I^2). *Some studies included more than 2 intervention groups (intervention vs control). **Duration, months is indicated by mean ± SD. Primary specified target indicates the most frequent, but not limited to, intervention focus per outcome identify subjectively by the investigators (Diet quality[1], weight loss[2], physical activity[3] and others[4] such as reduction in CVD risk factors, smoking cessation, stress reduction, diabetes or cancer prevention), for instance the primary specified target for the interventions reporting fruit intake was diet quality (93%) meaning diet quality was the most frequent target, but not exclusively as the intervention could also target physical activity or weight loss less frequently. [++] Pooled effect sizes were calculated using inverse-variance random-effects meta-analysis

Table S13. Randomised controlled trials: Comparison between the observed vs corrected pooled effect sizes for publication bias

Outcome, units	No. of Studies (No. of intervention groups) *	Observed pooled effect size[++] *(95% CI)*	No. imputed observations **	No. total number of studies (observed + corrected)**	Corrected pooled effect size *(95% CI)***
Dietary Habits					
Fruits and vegetables, serv/d	13 (15)	**0.34 (0.21, 0.47)**	8	23	0.06 (-0.06, 0.19)
Fruits, serv/d	11(13)	**0. 20 (0.12, 0.28)**	6	19	**0.12 (0.03, 0.20)**
Vegetables, serv/d	8 (10)	0.02 (-0.06, 0.10)	3	13	-0.05 (-0.14, 0.04)
Anthropometrics					
Body mass index, kg/m^2	37 (41)	**-0.37 (-0.49, -0.24)**	12	53	**-0.16 (-0.29, -0.02)**
Body weight, kg	30 (35)	**-1.32 (-1.72, -0.92)**	10	45	**-0.73 (-1.18, -0.29)**
Cardiometabolic Risk Factors					
SBP, mmHg	20 (22)	**-1.50 (-2.59, -0.41)**	6	28	-0.10 (-1.29, 1.10)
LDL cholesterol, mg/dL	11 (11)	**-5.97 (-10.63, -1.30)**	6	17	-0.12 (-4.20, 3.96)
Total cholesterol, mg/dL	17 (17)	**-1.00 (-1.81, -0.19)**	7	24	-0.25 (-1.22, 0.72)

Abbreviations: systolic blood pressure (SBP); low density lipoprotein (LDL); Servings/day (serv/d). * Some studies included more than 2 arms providing more than one intervention group[++] Observed pooled effect sizes were calculated using inverse-variance random-effects meta-analysis. **Trim-and-fill method for correction of publication bias.

References

1. Addley K, Boyd S, Kerr R, McQuillan P, Houdmont J, McCrory M. The impact of two workplace-based health risk appraisal interventions on employee lifestyle parameters, mental health and work ability: results of a randomized controlled trial. *Health Educ Res* 2014; **29**: 247-58.
2. Agarwal U, Mishra S, Xu J, Levin S, Gonzales J, Barnard ND. A multicenter randomized controlled trial of a nutrition intervention program in a multiethnic adult population in the corporate setting reduces depression and anxiety and improves quality of life: the GEICO study. *Am J Health Promot* 2015; **29**: 245-54.
3. Allen JC, Lewis JB, Tagliaferro AR. Cost-effectiveness of health risk reduction after lifestyle education in the small workplace. *Prev Chronic Dis* 2012; **9**: E96.
4. Almeida FA, You W, Harden SM, et al. Effectiveness of a Worksite-Based Weight Loss Randomized Controlled Trial: The Worksite Study. *Obesity* 2015; **23**: 737-45.
5. Atlantis E, Chow CM, Kirby A, Fiatarone Singh MA. Worksite intervention effects on physical health: a randomized controlled trial. *Health Promot Int* 2006; **21**: 191-200.
6. Balk-Møller NC, Poulsen SK, Larsen TM. Effect of a Nine-Month Web- and App-Based Workplace Intervention to Promote Healthy Lifestyle and Weight Loss for Employees in the Social Welfare and Health Care Sector: A Randomized Controlled Trial. *J Med Internet Res* 2017; **19**: e108.
7. Bandoni DH, Sarno F, Jaime PC. Impact of an intervention on the availability and consumption of fruits and vegetables in the workplace. *Public Health Nutr* 2011; **14**: 975-81.
8. Beresford SA, Thompson B, Feng Z, Christianson A, McLerran D, Patrick DL. Seattle 5 a Day worksite program to increase fruit and vegetable consumption. *Prev Med* 2001; **32**: 230-8.
9. Bhiri S, Maatoug J, Zammit N, et al. A 3-Year Workplace-Based Intervention Program to Control Noncommunicable Disease Risk Factors in Sousse, Tunisia. *J Occup Environ Med* 2015; **57**: e72-7.
10. Braeckman L, De Bacquer D, Maes L, De Backer G. Effects of a low-intensity worksite-based nutrition intervention. *Occup Med (Lond)* 1999; **49**: 549-55.
11. Campbell MK, Tessaro I, DeVellis B, et al. Effects of a tailored health promotion program for female blue-collar workers: health works for women. *Prev Med* 2002; **34**: 313-23.
12. Carr LJ, Leonhard C, Tucker S, Fethke N, Benzo R, Gerr F. Total Worker Health Intervention Increases Activity of Sedentary Workers. *Am J Prev Med* 2016; **50**: 9-17.
13. Cawley J, Price JA. Outcomes in a Program that Offers Financial Rewards for Weight Loss. National Bureau of Economic Research, Inc, NBER Working Papers: 14987; 2009.
14. Chen J, Wu X, Gu D. Hypertension and cardiovascular diseases intervention in the capital steel and iron company and Beijing Fangshan community. *Obes Rev* 2008; **9 Suppl 1**: 142-5.
15. Chen MM, Tsai AC, Wang JY. The effectiveness and barriers of implementing a workplace health promotion program to improve metabolic disorders in older workers in Taiwan. *Global health promotion* 2014; **23**: 6-14.
16. Choi YS, Song R, Ku BJ. Effects of a T'ai Chi-Based Health Promotion Program on Metabolic Syndrome Markers, Health Behaviors, and Quality of Life in Middle-Aged Male Office Workers: A Randomized Trial. *J Altern Complement Med* 2017; **23**: 949-56.
17. Cook C, Simmons G, Swinburn B, Stewart J. Changing risk behaviours for non-communicable disease in New Zealand working men--is workplace intervention effective? *N Z Med J* 2001; **114**: 175-8.
18. Danquah IH, Kloster S, Holtermann A, et al. Take a Stand!-a multi-component intervention aimed at reducing sitting time among office workers-a cluster randomized trial. *Int J Epidemiol* 2017; **46**: 128-40.
19. Doran K, Resnick B, Alghzawi H, Zhu S. The worksite heart health improvement project's impact on behavioral risk factors for cardiovascular disease in long-term care: A randomized control trial. *Int J Nurs Stud* 2018; **86**: 107-14.
20. Doran K, Resnick B, Zhu S, Alghzawi H. Testing the Impact of the Worksite Heart Health Improvement Project on Cardiovascular Disease Risk Factors Over Time. *J Occup Environ Med* 2018; **60**: 717-23.
21. Edries N, Jelsma J, Maart S. The impact of an employee wellness programme in clothing/textile manufacturing companies: a randomised controlled trial. *BMC Public Health* 2013; **13**: 25.
22. Elliot DL, Goldberg L, Kuehl KS, Moe EL, Breger RK, Pickering MA. The PHLAME (Promoting Healthy Lifestyles: Alternative Models' Effects) firefighter study: outcomes of two models of behavior change. *J Occup Environ Med* 2007; **49**: 204-13.
23. Emmons KM, Linnan LA, Shadel WG, Marcus B, Abrams DB. The Working Healthy Project: a worksite health-promotion trial targeting physical activity, diet, and smoking. *J Occup Environ Med* 1999; **41**:

545-55.
24. Engbers LH, van Poppel MN, van Mechelen W. Modest effects of a controlled worksite environmental intervention on cardiovascular risk in office workers. *Prev Med* 2007; **44**: 356-62.

25. Engbers LH, van Poppel MN, Chin APM, van Mechelen W. The effects of a controlled worksite environmental intervention on determinants of dietary behavior and self-reported fruit, vegetable and fat intake. *BMC Public Health* 2006; **6**: 253.
26. Eshah NF, Bond AE, Froelicher ES. The effects of a cardiovascular disease prevention program on knowledge and adoption of a heart healthy lifestyle in Jordanian working adults. *Eur J Cardiovasc Nurs* 2010; **9**: 244-53.
27. Faghri PD, Li R. Effectiveness of financial incentives in a worksite diabetes prevention program. *Open Obes J* 2014; **6**: 1-12.
28. Fernandez ID, Chin NP, Devine CM, et al. Images of a Healthy Worksite: A Group-Randomized Trial for Worksite Weight Gain Prevention With Employee Participation in Intervention Design. *Am J Public Health* 2015: e1-e8.
29. Fitzgerald S, Buckley L, Perry IJ, et al. The impact of a complex workplace dietary intervention on Irish employees' off-duty dietary intakes. *Health Promot Int* 2019; **70**: 195-201.
30. Flannery K, Resnick B, Galik E, Lipscomb J, McPhaul K, Shaughnessy M. The Worksite Heart Health Improvement Project (WHHIP): feasibility and efficacy. *Public Health Nurs* 2012; **29**: 455-66.
31. French SA, Harnack LJ, Hannan PJ, Mitchell NR, Gerlach AF, Toomey TL. Worksite environment intervention to prevent obesity among metropolitan transit workers. *Prev Med* 2010; **50**: 180-5.
32. Furuki K, Honda S, Jahng D, Ikeda M, Okubo T. The effects of a health promotion program on body mass index. *The Journal of Occupational Health* 1999; **41**: 19-26.
33. Geaney F, Kelly C, Di Marrazzo JS, et al. The effect of complex workplace dietary interventions on employees' dietary intakes, nutrition knowledge and health status: a cluster controlled trial. *Prev Med* 2016; **89**: 76-83.
34. Gerstel E, Pataky Z, Busnel C, et al. Impact of lifestyle intervention on body weight and the metabolic syndrome in home-care providers. *Diabetes Metab* 2013; **39**: 78-84.
35. Glasgow RE, et al. Modifying Dietary and Tobacco Use Patterns in the Worksite: The Take Heart Project. *Health Educ Q* 1997; **21**: 69-82.
36. Glasgow RE, Terborg JR, Hollis JF, Severson HH, Boles SM. Take heart: results from the initial phase of a work-site wellness program. *Am J Public Health* 1995; **85**: 209-16.
37. Goetzel RZ, Roemer EC, Pei X, et al. Second-year results of an obesity prevention program at the Dow Chemical Company. *J Occup Environ Med* 2010; **52**: 291-302.
38. Gomel MK, Oldenburg B, Simpson JM, Chilvers M, Owen N. Composite cardiovascular risk outcomes of a work-site intervention trial. *Am J Public Health* 1997; **87**: 673-6.
39. Gomel M, Oldenburg B, Simpson JM, Owen N. Work-site cardiovascular risk reduction: a randomized trial of health risk assessment, education, counseling, and incentives. *Am J Public Health* 1993; **83**: 1231-8.
40. Gosliner WA, James P, Yancey AK, Ritchie L, Studer N, Crawford PB. Impact of a worksite wellness program on the nutrition and physical activity environment of child care centers. *Am J Health Promot* 2010; **24**: 186-9.
41. Guldan GS, Zhang Y, Huang Y, Yang X, Zeng G. Effectiveness of a worksite nutrition education activity in a factory in China. *Asia Pac J Public Health* 1992; **6**: 8-14.
42. Gysan DB, Millentrup S, Albus C, et al. Substantial improvement of primary cardiovascular prevention by a systematic score-based multimodal approach: A randomized trial: The PreFord-Study. *European journal of preventive cardiology* 2017; **24**: 1544-54.
43. Hebert JR. A Work-Site Nutrition Intervention: Its Effects on the Consumption of Cancer-Related Nutrients. *Am J Public Health* 1993; **83**.
44. Hossain M, Islam Z, Sultana S, et al. Effectiveness of Workplace Nutrition Programs on Anemia Status among Female Readymade Garment Workers in Bangladesh: A Program Evaluation. *Nutrients* 2019; **11**.
45. Hunt MK, Hebert JR, Sorensen G, et al. Impact of a worksite cancer prevention program on eating patterns of workers. *J Nutr Educ* 1993; **25**: 236-44.
46. Hutchinson AD, Howlett G, Wilson C. Increasing employees' fruit consumption through access and peer support at work. *Food and Nutrition Sciences* 2013; **4**: 88-95.
47. Iriyama Y, Murayama N. Effects of a worksite weight-control programme in obese male workers: A randomized controlled crossover trial. *Health Educ J* 2014; **73**: 247-61.
48. Jaime PC, Bandoni DH, Sarno F. Impact of an education intervention using email for the prevention of weight gain among adult workers. *Public Health Nutr* 2014; **17**: 1620-7.
49. Jamal SN, Moy FM, Azmi Mohamed MN, Mukhtar F. Effectiveness of a Group Support Lifestyle Modification (GSLiM) Programme among Obese Adults in Workplace: A Randomised Controlled Trial. *PLoS One* 2016; **11**: e0160343.
50. Jeffery RW, Forster JL, French SA, et al. The Healthy Worker Project: a work-site intervention for weight control and smoking cessation. *Am J Public Health* 1993; **83**: 395-401.

51. Johanning E, Landsbergis P, Geissler H, Karazmann R. Cardiovascular Risk and Back-disorder Intervention Study of Mass Transit Operators. *Int J Occup Environ Health* 1996; **2**: 79-87.
52. Kamioka H, Nakamura Y, Okada S, et al. Effectiveness of comprehensive health education combining lifestyle education and hot spa bathing for male white-collar employees: a randomized controlled trial with 1-year follow-up. *J Epidemiol* 2009; **19**: 219-30.
53. Kouwenhoven-Pasmooij TA, Robroek SJW, Kraaijenhagen RA, et al. Effectiveness of the blended-care lifestyle intervention 'PerfectFit': a cluster randomised trial in employees at risk for cardiovascular diseases. *BMC Public Health* 2018; **18**: 766.
54. Kuehl KS, Elliot DL, Goldberg L, et al. The safety and health improvement: enhancing law enforcement departments study: feasibility and findings. *Frontiers in public health* 2014; **2**: 38.
55. Kushida O, Murayama N. Effects of environmental intervention in workplace cafeterias on vegetable consumption by male workers. *J Nutr Educ Behav* 2014; **46**: 350-8.
56. Kwak L, Kremers SP, Candel MJ, Visscher TL, Brug J, van Baak MA. Changes in skinfold thickness and waist circumference after 12 and 24 months resulting from the NHF-NRG In Balance-project. *Int J Behav Nutr Phys Act* 2010; **7**: 26.
57. Kwak L, Kremers SP, Visscher TL, van Baak MA, Brug J. Behavioral and cognitive effects of a worksite-based weight gain prevention program: the NHF-NRG in balance-project. *J Occup Environ Med* 2009; **51**: 1437-46.
58. LaCaille LJ, Schultz JF, Goei R, et al. Go!: results from a quasi-experimental obesity prevention trial with hospital employees. *BMC Public Health* 2016; **16**: 171.
59. Lassen AD, Thorsen AV, Sommer HM, et al. Improving the diet of employees at blue-collar worksites: results from the 'Food at Work' intervention study. *Public Health Nutr* 2011; **14**: 965-74.
60. Lemon SC, Wang ML, Wedick NM, et al. Weight gain prevention in the school worksite setting: results of a multi-level cluster randomized trial. *Prev Med* 2014; **60**: 41-7.
61. Lemon SC, Zapka J, Li W, et al. Step ahead a worksite obesity prevention trial among hospital employees. *Am J Prev Med* 2010; **38**: 27-38.
62. Limaye T, Kumaran K, Joglekar C, et al. Efficacy of a virtual assistance-based lifestyle intervention in reducing risk factors for Type 2 diabetes in young employees in the information technology industry in India: LIMIT, a randomized controlled trial. *Diabet Med* 2017; **34**: 563-8.
63. Lin YP, Lin CC, Chen MM, Lee KC. Short-Term Efficacy of a "Sit Less, Walk More" Workplace Intervention on Improving Cardiometabolic Health and Work Productivity in Office Workers. *J Occup Environ Med* 2017; **59**: 327-34.
64. Lin TY, Liao PJ, Ting MK, Hsu KH. Lifestyle characteristics as moderators of the effectiveness of weight control interventions among semiconductor workers. *Biomed J* 2018; **41**: 376-84.
65. Linde JA, Nygaard KE, MacLehose RF, et al. HealthWorks: results of a multi-component group-randomized worksite environmental intervention trial for weight gain prevention *Int J Behav Nutr Phys Act* 2012; **9**: 14.
66. Lindquist T. Using lifestyle and coping to reduce job stress and improve health in “at risk” office workers. *Stress Med* 1999; **15**: 143-52.
67. Mache S, Jensen S, Jahn R, Steudtner M, Ochsmann E, Preuss G. Worksite Health Program Promoting Changes in Eating Behavior and Health Attitudes. *Health promotion practice* 2015; **16**: 826-36.
68. Mache S, Jensen S, Linnig S, et al. Do overweight workers profit by workplace health promotion, more than their normal-weight peers? Evaluation of a worksite intervention. *J Occup Med Toxicol* 2015; **10**: 28.
69. Maes S, Verhoeven C, Kittel F, Scholten H. Effects of a Dutch work-site wellness-health program: the Brabantia Project. *Am J Public Health* 1998; **88**: 1037-41.
70. Mansi S, Milosavljevic S, Tumilty S, Hendrick P, Higgs C, Baxter DG. Investigating the effect of a 3-month workplace-based pedometer-driven walking programme on health-related quality of life in meat processing workers: a feasibility study within a randomized controlled trial. *BMC Public Health* 2015; **15**: 410.
71. Meenan RT. Economic evaluation of a worksite obesity prevention and intervention trial among hotel workers in Hawaii (Provisional abstract). *J Occup Environ Med* 2010; **52**: S8-S13.
72. Miller CK, Weinhold KR, Nagaraja HN. Impact of a Worksite Diabetes Prevention Intervention on Diet Quality and Social Cognitive Influences of Health Behavior: A Randomized Controlled Trial. *J Nutr Educ Behav* 2016; **48**: 160-9.e1.
73. Mills PR, Kessler RC, Cooper J, Sullivan S. Impact of a health promotion program on employee health risks and work productivity. *Am J Health Promot* 2007; **22**: 45-53.
74. Morgan PJ, Collins CE, Plotnikoff RC, et al. Efficacy of a workplace-based weight loss program for overweight male shift workers: the Workplace POWER (Preventing Obesity Without Eating like a Rabbit) randomized controlled trial. *Prev Med* 2011; **52**: 317-25.
75. Moy FM, Ab Sallam A, Wong ML. Dietary modification in a workplace health promotion program in Kuala Lumpur, Malaysia. *Asia Pac J Public Health* 2008; **20 Suppl**: 166-72.

76. Moy F, Sallam AA, Wong M. The results of a worksite health promotion programme in Kuala Lumpur, Malaysia. *Health Promot Int* 2006; **21**: 301-10.
77. Olafsdottir AS, Johannsdottir SS, Arngrimsson SA, Johannsson E. Lifestyle intervention at sea changes body composition, metabolic profile and fitness. *Public Health* 2012; **126**: 888-90.
78. Ostbye T, Stroo M, Brouwer RJN, et al. Steps to Health Employee Weight Management Randomized Control Trial Short-Term Follow-Up Results. *J Occup Environ Med* 2015; **57**: 188-95.
79. Pedersen C, Halvari H, Williams GC. Worksite intervention effects on motivation, physical activity, and health: A cluster randomized controlled trial. *Psychol Sport Exerc* 2018; **35**: 171-80.
80. Pegus C, Bazzarre TL, Brown JS, Menzin J. Effect of the Heart At Work program on awareness of risk factors, self-efficacy, and health behaviors. *J Occup Environ Med* 2002; **44**: 228-36.
81. Peters SE, Grant MP, Rodgers J, Manjourides J, Okechukwu CA, Dennerlein JT. A Cluster Randomized Controlled Trial of a Total Worker Health(®) Intervention on Commercial Construction Sites. *Int J Environ Res Public Health* 2018; **15**.
82. Prabhakaran D, Jeemon P, Goenka S, et al. Impact of a worksite intervention program on cardiovascular risk factors: a demonstration project in an Indian industrial population. *J Am Coll Cardiol* 2009; **53**: 1718-28.
83. Racette SB, Deusinger SS, Inman CL, et al. Worksite Opportunities for Wellness (WOW): effects on cardiovascular disease risk factors after 1 year. *Prev Med* 2009; **49**: 108-14.
84. Rameshbabu A, Reddy DM, Ports KA. Learning to health yourself: a randomized, tailored self-regulation intervention among custodial employees. *Health Educ Res* 2018; **33**: 447-57.
85. Raymond LW, Roy DM, Mullinax SL, Yanni A, Pentek KC, Isaacs SE. Preventing Diabetes in the Workplace: Effects of Coaching and Monetary Incentives. *J Occup Environ Med* 2019; **61**: e308-e11.
86. Reynolds KD, Gillum JL, Hyman DJ, et al. Comparing two strategies to modify dietary behavior and serum cholesterol. *J Cardiovasc Risk* 1997; **4**: 1-5.
87. Ribeiro MA, Martins MA, Carvalho CRF. Interventions to Increase Physical Activity in Middle-Age Women at the Workplace: A Randomized Controlled Trial. *Med Sci Sports Exerc* 2014; **46**: 1008-15.
88. Robbins AS, Chao SY, Baumgartner N, Runyan CN, Oordt MS, Fonseca VP. A low-intensity intervention to prevent annual weight gain in active duty Air Force members. *Mil Med* 2006; **171**: 556-61.
89. Rowland SA, Berg KE, Kupzyk KA, et al. Feasibility and Effect of a Peer Modeling Workplace Physical Activity Intervention for Women. *Workplace Health Saf* 2018; **66**: 428-36.
90. Rusali R, Abdul Manaf Z, Shahar S, et al. Comparison of the Effectiveness of Online and Face-to-Face Weight-loss Interventations in the Workplace: Evidence from Malaysia. *Sains Malaysiana* 2018; **47**: 2437-45.
91. Ryu H, Jung J, Cho J, Chin DL. Program Development and Effectiveness of Workplace Health Promotion Program for Preventing Metabolic Syndrome among Office Workers. *Int J Environ Res Public Health* 2017; **14**.
92. Saleh SS, Mohamad S. Alameddine P, MPH;1 Dan Hill, MS;2 Jessica Darney-Beuhler, BS;2 & Ann Morgan, BA2. The effectiveness and cost-effectiveness of a rural employer-based wellness program. *J Rural Health* 2010; **26**: 259-65.
93. Salinardi TC, Batra P, Roberts SB, et al. Lifestyle intervention reduces body weight and improves cardiometabolic risk factors in worksites. *Am J Clin Nutr* 2013; **97**: 667-76.
94. Scoggins JF, Sakumoto KN, Schaefer KS, Bascom B, Robbins DJ, Whalen CL. Short-term and long-term weight management results of a large employer-sponsored wellness program. *J Occup Environ Med* 2011; **53**: 1215-20.
95. Sforzo GA, Kaye MP, Calleri D, Ngai N. Free choice access to multipoint wellness education and related services positively impacts employee wellness: a randomized and controlled trial. *J Occup Environ Med* 2012; **54**: 471-7.
96. Shimizu T, Horiguchi I, Kato T, Nagata S. Relationship between an interview-based health promotion program and cardiovascular risk factors at Japanese companies. *J Occup Health* 2004; **46**: 205-12.
97. Shrivastava U, Fatma M, Mohan S, Singh P, Misra A. Randomized Control Trial for Reduction of Body Weight, Body Fat Patterning, and Cardiometabolic Risk Factors in Overweight Worksite Employees in Delhi, India. *J Diabetes Res* 2017; **2017**: 7254174.
98. Siegel JM, Prelip ML, Erausquin JT, Kim SA. A worksite obesity intervention: results from a group-randomized trial. *Am J Public Health* 2010; **100**: 327-33.
99. Smith-McLallen A, Heller D, Vernisi K, Gulick D, Cruz S, Snyder RL. Comparative Effectiveness of Two Walking Interventions on Participation, Step Counts, and Health. *Am J Health Promot* 2017; **31**: 119-27.
100. Song Z, Baicker K. Effect of a Workplace Wellness Program on Employee Health and Economic Outcomes: A Randomized Clinical Trial. *JAMA* 2019; **321**: 1491-501.
101. Sorensen G, Barbeau E, Stoddard AM, Hunt MK, Kaphingst K, Wallace L. Promoting behavior change among working-class, multiethnic workers: results of the healthy directions--small business study. *Am J Public Health* 2005; **95**: 1389-95.

102. Sorensen G, Stoddard A, Peterson K, et al. Increasing fruit and vegetable consumption through worksites and families in the treatwell 5-a-day study. *Am J Public Health* 1999; **89**: 54-60.
103. Sorensen G, Thompson B, Glanz K, et al. Work site-based cancer prevention: primary results from the Working Well Trial. *Am J Public Health* 1996; **86**: 939-47.
104. Sorensen G, Morris DM, Hunt MK, et al. Work-site nutrition intervention and employees' dietary habits: the Treatwell program. *Am J Public Health* 1992; **82**: 877-80.
105. Steenhuis I, Van Assema P, Van Breukelen G, Glanz K, Kok G, De Vries H. The impact of educational and environmental interventions in Dutch worksite cafeterias. *Health Promot Int* 2004; **19**: 335-43.
106. Stites SD, Singletary SB, Menasha A, et al. Pre-ordering lunch at work. Results of the what to eat for lunch study. *Appetite* 2015; **84**: 88-97.
107. Strijk JE, Proper KI, van der Beek AJ, van Mechelen W. A worksite vitality intervention to improve older workers' lifestyle and vitality-related outcomes: results of a randomised controlled trial. *J Epidemiol Community Health* 2012; **66**: 1071-8.
108. Tan AM, LaMontagne AD, English DR, Howard P. Efficacy of a workplace osteoporosis prevention intervention: a cluster randomized trial. *BMC Public Health* 2016; **16**: 859.
109. Terry PE, Fowles JB, Xi M, Harvey L. The ACTIVATE study: results from a group-randomized controlled trial comparing a traditional worksite health promotion program with an activated consumer program. *Am J Health Promot* 2011; **26**: e64-73.
110. Thompson WG, Koepp GA, Levine JA. Increasing physician activity with treadmill desks. *Work* 2014; **48**: 47-51.
111. Tucker S, Farrington M, Lanningham-Foster LM, et al. Worksite Physical Activity Intervention for Ambulatory Clinic Nursing Staff. *Workplace Health Saf* 2016.
112. van Berkel J, Boot CR, Proper KI, Bongers PM, van der Beek AJ. Effectiveness of a worksite mindfulness-based multi-component intervention on lifestyle behaviors. *Int J Behav Nutr Phys Act* 2014; **11**: 9.
113. Velema E, Vyth EL, Hoekstra T, Steenhuis IHM. Nudging and social marketing techniques encourage employees to make healthier food choices: a randomized controlled trial in 30 worksite cafeterias in The Netherlands. *Am J Clin Nutr* 2018; **107**: 236-46.
114. Viester L, Verhagen E, Bongers PM, van der Beek AJ. Effectiveness of a Worksite Intervention for Male Construction Workers on Dietary and Physical Activity Behaviors, Body Mass Index, and Health Outcomes: Results of a Randomized Controlled Trial. *Am J Health Promot* 2018; **32**: 795-805.
115. Viitasalo K, Hemio K, Puttonen S, et al. Prevention of diabetes and cardiovascular diseases in occupational health care: feasibility and effectiveness. *Prim Care Diabetes* 2015; **9**: 96-104.
116. Vilela BL, Silva AAB, de Lira CAB, Andrade MD. Workplace Exercise and Educational Program for Improving Fitness Outcomes Related to Health in Workers A Randomized Controlled Trial. *J Occup Environ Med* 2015; **57**: 235-40.
117. Wierenga D, Engbers LH, Van Empelen P, et al. The implementation of multiple lifestyle interventions in two organizations: a process evaluation. *J Occup Environ Med* 2014; **56**: 1195-206.
118. Williams AE, Stevens VJ, Albright CL, Nigg CR, Meenan RT, Vogt TM. The results of a 2-year randomized trial of a worksite weight management intervention. *AJHP* 2014; **28**: 336-9.
119. Wilson MG, DeJoy DM, Vandenberg R, Padilla H, Davis M. FUEL Your Life: A Translation of the Diabetes Prevention Program to Worksites. *Am J Health Promot* 2016; **30**: 188-97.
120. Wilson MG, DeJoy DM, Vandenberg RJ, Corso P, Padilla H, Zuercher H. Effect of Intensity and Program Delivery on the Translation of Diabetes Prevention Program to Worksites: A Randomized Controlled Trial of Fuel Your Life. *J Occup Environ Med* 2016; **58**: 1113-20.
121. Zoellner J, You W, Almeida F, et al. The Influence of Health Literacy on Reach, Retention, and Success in a Worksite Weight Loss Program. *Am J Health Promot* 2016; **30**: 279-82.