

Assessment of Health Risk with Feedback Plus Health Education Plus Other Interventions to Change Employee Health Behaviors

Summary Evidence Tables

Author & year (study period) Design suitability (design) Quality of execution (# of Limitations)	Intervention and comparison elements	Study population description Sample size	ALCOHOL				
			Outcome measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Bertera 1993 (1984-1985; 1986-1988) Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE (group) + Environmental Changes + EA PA + Incentives (for behavior change) Comparison: Before-After	Employees of a large manufacturing company with more than 100 locations 7,178 intervention group	Self-reported mean (sd) number of drinks per week; HR (≥ 15 drinks per week at baseline) (n=511)	23.21(0.05) drinks	13.28(0.03) drinks	-9.9 drinks per week (-43%) $p < 0.001$	2 y
Edye 1989 (1977-1985) Greatest (Individual randomized trial) Fair (4 limitations)	Location: Sydney, Australia Components: AHRF + HE Comparison: AHRF	Participating government employees from two selected government organizations 4607 volunteers 2489 eligible 1937 follow-up 861 intervention group 1076 comparison group	Self-reported mean (sd) change in alcohol intake (drinks per week) Intervention Comparison	NR	+1.38(0.35) drinks +1.40(0.28) drinks	+0.02 drinks per week	36 m
Goetzel 1996 Knight 1994 (1989-1992) Greatest (Prospective Cohort) Fair (4 limitations)	Location: USA; North Carolina; Duke University Components: AHRF + HE + High-risk programs + ROPC Comparison: Before-after (cohort f/u subset)	University employees enrolling in the ongoing health promotion program (voluntary) Selected =1868 Responded=805 (45.5%)	Percent who "Need to Improve" alcohol use (self-reported >15 drinks per week or >3 drinks per day)	11.0%	8.0%	-3.0 pct pts (-27.3%) (CI =-46.4, -1.3) $p < .05$	3.3 y
Holt 1995 Spilman 1986 Bellingham 1987 Sloan 1988 (1983-1988) Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE + ROPC + EA PA & N Comparison: Before-After	Employees of AT&T at seven worksites 2047 baseline 629 follow-up	Self-reported ounces of alcohol per day	0.55 ounces	0.44 ounces	-0.1 ounces (-20.0%) $p < 0.001$	5 y

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Kronenfeld 1987 (1983-1984) Greatest (Other design with concurrent comparison group) Fair (4 limitations)	Location: Columbia, SC; USA Components: AHRF + HE + Policy Comparison: HE	Two-county region; Potential target population 13,000 State employees 854 baseline F/U 142 Intervention 313 Comparison	Percent self- reporting ≥14 drinks per week Intervention Comparison	 12% 16%	 6% 11%	 -1 pct pt (-27.3%) (CI=-64.7, 49.9)	10m
Musich 2003 Schultz 2002 Yen 2001 (1996-2001) Least (Before-After) Fair (4 limitations)	Location: State of Michigan; USA Components: AHRF + Screening + HE (individual & group) + ROPC (vouchers) Comparison: Before-after	Employees of General Motors Corporation 2141	Percent self- reporting >14 drinks per week Year 5 posttest	 4.8%	 2.8%	 -2.0 pct pts (-41.7%) (CI= -57.3, -20.2) p=.001	5 y
Pelletier 2004 Boles 2004 (2001-2002) Least (Before-After) Fair (3 limitations)	Location: USA; 7 locations Components: AHRF + HE + Incentives + Wellness Program + EH to PA Comparison: Before-After	Employees of large national employer. Participants were members of corporate-sponsored fitness centers in 7 locations throughout USA plus all of the employees in one field site. 5042 eligible 2264 1st survey 500 (22% of 2264 & 10% of eligible) pre & post respondents	Percent answering "Yes" to one or more CAGE questions (tried to cut down, gets annoyed at others comments, feels guilty, has eye opener first thing in morning)	1%	1.2%	+0.2 pct pts (+20.0%) (CI=-63.1, +290.7) p=1.0	6-12m
Puska 1988 (1984-1985) Greatest (Group non- randomized Trial) Fair (4 limitations)	Location: Finland; North Karelia Components: AHRF + HE (mass media;) Comparison: AHRF + (HE- exposure to mass media series)	Selected worksites in region Inter: 8 worksites Comp: 8 worksites Recruited employees in study worksites Numbers <u>Grp Elgbl bsln 1yr %</u> I 425 391 351 89 C 290 258 225 87	Self-reported mean number of drinks per week Intervention Comparison	 6.6 drinks 5.8 drinks	 6.6 drinks 6.9 drinks	 -1.1 drinks per week (-15.9%) NS	1 y

AHRF – Assessment of Health Risk with Feedback
PA – Physical activity
ROPC – Reduced out-of-pocket costs

HE – Health education
N – Nutrition
HR – High Risk

EA – Enhanced access
Med – Medical care
CI=95% Confidence interval

NS=Not significant

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Wood 1989 (1985-1986) Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE with incentives Comparison: Usual care (non-participants)	Employees of General Mills 688 program participants 387 non-participants	Percent self- reporting consuming 8 to 24 drinks per week	22%	18%	-3.0 pct pts (-14.3%) (CI= -30.9, +6.3)	1 y

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Author & year (study period) Design suitability (design) Quality of execution (# of Limitations) Evaluation setting	Intervention and comparison elements	Study population description Sample size	DIETARY BEHAVIOR				
			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Anderson 1999 Greatest (Group randomized controlled trial) Fair (3 limitations)	Location: Denver, CO; USA Components: I1: AHRF + HE (group) I2: AHRF + HE (self-help) Comparison: Usual care	Employees of eight small worksites. 234 participants at baseline 118 usual care group 116 intervention group I1: 35 I2: 26 C: 61	Self-reported serving of fruits and vegetables per day Intervention1 Intervention2 Comparison Self-reported fat intake (grams per day) Intervention1 Intervention2 Comparison	 2.2 serving 2.9 serving 2.4 serving 45.1 grams 57.3 grams 37.8 grams	 2.9 serving 2.4 serving 2.4 serving 43.8 grams 42.0 grams 33.6 grams	 +0.7servings per day -0.5 servings per day +2.9 grams per day (9.3%) -11.1 grams per day (-17.5%)	1 y
Baier 1992 (1988) Moderate (Time Series) Fair (4 limitations)	Location: Chicago, IL; USA Components: AHRF + HE Comparison: Time Series	Employees of Health Service of Rush-Presbyterian St. Lukes Medical Center 2255 completed a health risk assessment 2251 successful measurements for blood pressure 234 completed baseline and follow- up	Self-reported servings of fruits and vegetables per week	7.0 serving	7.2 serving	+0.2 servings per week	6 m
Donnelly 1996 Least (Before-After) Fair (3 limitations)	Location: Akron, OH; USA Components: AHRF + HE + EA PA + Comparison: Before-After	Employees of Sterling, Inc. - a national retail jewelry store chain 10,000 total employees 338 participants- 133 middle men 35 senior managers	Percent of participants with elevated risk: Self-reported dietary fat	63%	37%	-26 pct pts (-41.3%) (CI=-50.0, -31.0)	1 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
			Percent of participants with elevated risk: Self-reported vegetables and fruits	71%	54%	-17 pct pts (-23.9%)	
Fitzgerald 1991 NR Greatest (Individual Randomized Trial) Fair (4 limitations)	Location: Baltimore, MD; USA Components: AHRF + Screening + ROPC + Client reminder + HE Comparison: AHRF	Employees in 5 worksites for Blue Cross Blue Shield Maryland 2000 eligible employees 836 participants 262 followed up	Dietary change to reduce cholesterol Inter 83 Comp 84		88% 81%	+7 p=0.37	1-2 m
Goetzel 2002 Ozminkoski 2002 Wilbur 1986 Bly 1986 Breslow 1990 Shipley 1988 1995-1999 Moderate (Retrospective cohort) Fair (3 limitations)	Location: USA Components: AHRF + HE + Incentives + High Risk programs Comparison: Before-after; Participants vs. non-participants All received AHRF	Employees of Johnson & Johnson at borderline or high risk participating in the program with at least 2 HRAs completed over a suitable time interval 2301 PTC (Pathways to Change) participants 2285 PTC non-participants	Percent at HR for excessive fat intake at each HRA HR (PTC) LR (non-PTC) Aggregate	25.8% 19.5% 22.4%	28.6% 23.1% 25.4%	+2.8 pct pts (+10.9%) p=.0019 +3.6 pct pts (+18.5%) +3.0 pct pts (+13.4%) (CI=+2.2, +25.8) p<.0001	33 m
Goetzel 1996 Knight 1994 (1989-1992) Greatest (Prospective Cohort) Fair (4 limitations)	Location: North Carolina; USA (Duke University) Components: AHRF + HE + High-risk programs + ROPC Comparison: Before-after (cohort f/u subset)	University employees enrolling in the ongoing health promotion program (voluntary) Selected =1868 Responded=805 (45.5%)	Percent "Need to Improve," self-reported fat intake>30% of total daily calories	42%	36%	-6.0 pct pts (-14.3%) (CI= -24.2, -3.1) p<.05	3.3 y

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Ozminkowski 2000 Ozminkowski 1999 (1994-1997) Least (Before-after) for all participants Moderate (Retrospective cohort) for HR subset Fair (3 limitations)	Location: North America Components: All Participants: AHRF+ 1800 line + HRA completion incentive for low risk/high risk HR Subset: ACCENT Program - repeat risk-specific AHRF every three months (3x) + one outbound phone call. Late addition telephone counseling & HE. Comparison: Before-after for participants vs. non- participants	All active Citibank employees Varies from 1307-9234	Percent self- reporting >22 servings of fat per week: All HR	3.5% NR	2.2% NR	-1.3 pct pts (-38.0%) (CI=-61.7, +0.2) -1.2 pct pts All p≤.05	Mean 2 y
Pelletier 2004 Boles 2004 (2001-2002) Least (Before-After) Fair (3 limitations)	Location: USA; 7 locations Components: AHRF + HE + Incentives + Wellness Program + EH to PA Comparison: Before-After	Employees of large national employer. Participants were members of corporate-sponsored fitness centers in 7 locations throughout USA plus all of the employees in one field site. 5042 eligible 2264 1st survey 500 (22% of 2264 & 10% of eligible) pre & post respondents	Percent who self- reported regularly eating fatty food, regularly eating meals away from home, or usually eating fewer than 3 servings of fruits and vegetables per day	79.6%	73.0%	-6.6 pct pts (-8.3%) (CI= -14.4, -1.7) p<.001	6-12m

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Sorenson 2002 (1997-1999) Least (Before-After) Fair (4 limitations)	Location: Eastern MA ; USA Components: I1: AHRF + HE (Occupational health/safety included) with Incentives I2: AHRF + HE (Occupational health/safety not included) with Incentives Comparison: Before-After	Employees of manufacturing worksites 2214 employees in Occupational health/safety group 2413 employees in no Occupational health/safety group	Self-reported servings of fruits and vegetables per day Intervention 1 Intervention 2	 3.5 serving 3.5 serving	 3.5 serving 3.4 serving	 +0.1 servings per day (+1.5%) p=0.24 -0.1 servings per day (-2.9%) p=0.24	2 y
Sorenson 1998 (1990-1993) Greatest (Group randomized trial) Fair (4 limitations)	Location: Eastern and Central MA; USA Components: AHRF + HE Comparison: AHRF	Employees of participating worksites 8572 employees 5914 intervention 2658 comparison	Self-reported servings of fruits and vegetables per day Intervention Comparison Self-reported percent energy from fat Intervention Comparison	 2.3 serving 2.3 serving	 2.6 serving 2.4 serving	 +0.2 servings per day (+8.3%) p=.04 -1.8 pct pts (-4.8%) , p<0.01	2 y
Sorenson 1996 Abrams 1994 (1990-1993) Greatest (Group randomized trial) Fair (4 limitations)	Location: USA; 16 states Components: AHRF + HE (one-on-one & group) + Incentives + EA N	Employees of participating worksites ~ 28,000 employees 114 worksites recruited 111 worksites enrolled 108 worksites for pair wise analysis	Self-reported percent energy from fat Intervention Comparison	 36.7% 36.7%	 34.6% 35.0%	 -0.4 pct pts (-1.0%)	6 m

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	Comparison: AHRF (3 of 4 study centers provided an optimal minimal intervention at comparison sites, following a standardized protocol that included distribution of print materials such as posters and newsletters)		Self-reported servings of fruits and vegetables per day Intervention Comparison	 2.6 serving 2.6 serving	 2.8 serving 2.6 serving	 +0.2 servings per day (+7.7%)	
Strychar 1998 (NR) Least (Before-After Fair (2 limitations)	Location: Canada Components: I1: AHRF + HE I2: AHRF + HE Comparison: Before-After	Employees of 6 hospitals 216 employees in I1 213 employees in I2	Self-reported percent energy from total fat Intervention 1 Intervention 2	 33.5% 33.8%	 31.7% 32.9%	 -1.8 pct pts (-5.4%) -0.9 pct pts (-2.7%) All p<.05	16-20 w
Tilley 1997 February 1993- Greatest (Group Randomized Trial) Fair (3 limitations)	Location: Michigan, Ohio, Indiana, New York, Pennsylvania; USA Components: AHRF + HE (group, one-on-one, self-help) + EA N + Incentives Comparison: AHRF + Incentives	Employees of 28 automotive plants 2240 Intervention group 2802 Comparison group	Mean (sd) self-reported fat intake as a percent of total energy Intervention Comparison Mean (sd) self-reported fruit and vegetable servings per day Intervention Comparison	 37.2% (0.3) 36.7% (0.2)	 35.0% (0.3) 35.5% (0.2) 3.6 (.04) servings 3.5 (.05) servings	 -1.0 pct pts (-2.7%) p=.19 +0.1 servings per day (+3.9%) p=.08	2 y

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Williams 2004 NR Least Suitable (Before- after) Fair (4 limitations)	Location: State of Georgia, USA Components: AHRF + HE Comparison: Before-After	Employees from urban and rural worksites 294 employees overall (O) 134 employees at the urban worksites (U) 160 employees at the rural worksites (R)	Percent of employees self- reporting high dietary fat intake: Urban Rural Aggregate	 44.3% 70.5% 58.6%	 43.7% 55.4% 50.1%	 -0.6 pct pts (-1.4%) (CI= -24.7, +29.2) -15.1 pct pts (- 21.4%) p<.01 (CI= -33.8, -6.7) -8.5 pct pts (-14.5%) (CI= -26.4, -0.7)	1 y

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Anderson 1999 Greatest (Group randomized controlled trial) Fair (3 limitations)	Location: Denver, CO; USA; Components: Arm 1: AHRF + HE (group) Arm 2: AHRF + HE (self-help) Comparison: Usual care	Employees of eight small worksites. 234 participants at baseline 118 usual care group 116 intervention group	Percent self- reporting exercising ≥1x per week Intervention 1 Intervention 2 Comparison	 73.0% 69.0% 79.7%	 88.9% 78.6% 83.8%	 +11.7 pct pts (+15.7%) (CI=-1.5, +35.8) +5.4 pct pts (+8.2%) (CI=-13.9, +36.0)	1 y
Baier 1992 (1988) Moderate (Time Series) Fair (4 limitations)	Location: Chicago, IL; USA Components: AHRF + HE Comparison: Time-series	Employees of a medical center 2255 completed a health risk assessment 2251 successful measurements for blood pressure 234 completed baseline and follow- up	Percent self- reporting exercising ≥3x per week of ≥20 minutes each time	NR	NR	26.0%	6 m
Bertera 1993 (1984-1985; 1986-1988) Least (Before-after) Fair (4 limitations)	Location: USA Components: AHRF + HE (group) + Environmental Changes + EA PA + Incentives (for behavior change) Comparison: Before-after	Employees of a large manufacturing company with more than 100 locations 7,178 intervention group	Percent self- reporting exercise ≥3x per week	39.8%	54.3%	+14.5 pct pts (+36.5%) (CI=+29.1, +44.4)	2 y
Donnelly 1996 Least (Before-After) Fair (3 limitations)	Location: Akron, OH; USA Components: AHRF + HE + EA PA Comparison: Before-After	Employees of Sterling, Inc. - a national retail jewelry store chain 10,000 total employees 338 participants- 133 middle men 35 senior managers	Percent with elevated risk	46.0%	26.0%	-20.0 pct pts - 37.0%) (CI = -31.0, -67.0)	7 m

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Fitzgerald 1991 NR Greatest (Individual Randomized Trial) Fair (4 limitations)	Location: Baltimore, MD; USA Components: AHRF + Screening + ROPC + Client reminder + HE Comparison: AHRF	Employees in 5 worksites for Blue Cross Blue Shield Maryland 2000 eligible employees 836 participants 262 followed up	Exercise regularly Inter 100 Comp 100		27.0% 38.0%	-11.0 p=0.41	1-2 m
Goetzel 2002 Ozminkowski 2002 Wilbur 1986 Bly 1986 Breslow 1990 Shiple 1988 1995-1999 Least (Retrospective cohort) Fair (3 limitations)	Location: USA Components: AHRF + HE + Incentives + High Risk programs Comparison: Before-after; Participants vs. non- participants	Employees of Johnson & Johnson at borderline or high risk participating in the program with at least 2 HRAs completed over a suitable time interval 2301 PTC (Pathways to Change) participants 2285 PTC non participants	Percent at HR (self- reporting <3 aerobic exercise periods of ≥20 minutes per week): HR (PTC) Aggregate	43.2% 54.2%	31.3% 64.9%	-11.9 pct pts (-27.6%) +10.7 pct pts (+19.7%) (CI= +15.7, +23.9)	Median 33 m
Goetzel 1996 Knight 1994 (1989-1992) Greatest (Prospective Cohort) Fair (4 limitations)	Location: North Carolina; USA (Duke University) Components: AHRF + HE + High-risk programs + ROPC Comparison: Before-after (cohort f/u subset)	University employees enrolling in the ongoing health promotion program (voluntary) selected =1868 Responded=805 (45.5%)	Percent self- reporting exercising aerobically >2x per week	24.0%	33.0%	+9.0 pct pts (+37.5%) (CI= +17.5, +61.0)	3.3 y
Heirich 1993 Erfurt 1991 Gregg 1990 (1985-1988) Least Suitable for AHRF (Before-After study arm selected from group randomized trial) Fair (4 limitations)	Location: Detroit, MI; USA, (Ford Motor Company) Components: Site A = AHRF + HE + EA Site B = AHRF + HE (mild) + EA + EA PA Site C = AHRF + HE (intensive) + EA Site D = AHRF + HE	Automotive plant employees 4 plants Site BL F/U A 1209 493 B 1836 503 C 1713 481 D 1571 403	Percent self- reporting physical activity ≥3x per week: Site A Site B Site C	30% 36% 32%	37% 30% 44%	+7.0 pct pts(+23.3%) (CI =+3.3, +47.3) -6.0 pct pts(-16.7%) (CI =-30.2, -0.5)	3 y

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	(intensive) + EA + EA PA (fitness program) + Peer Support +Competitions Comparison: Four before- after study arms		Site D	40%	45%	+12.0 pct pts (+37.5%) (CI =+16.6, +62.1) +5.0 pct pts (+12.5%) (CI =-4.2, +32.2)	
Holt 1995 Spilman 1986 Bellingham 1987 Sloan 1988 (1983-1988) Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE + ROPC + EA PA & N Comparison: Before-After	Employees of AT&T at seven worksites 2047 baseline 629 follow-up	Self-reported exercise per week (converted to kcal per week)	3023.9kcal	2956.1kcal	-67.8kcal (-2.2%) NS	5 y
Musich 2003 Schultz 2002 Yen 2001 (1996-2001) Least (Before-After) Fair (4 limitations)	Location: USA; Michigan Components: AHRF + Screening + HE (individual & group) + ROPC (vouchers) Comparison: Before-after	Employees of General Motors Corporation 2141	Percent self- reporting physical activity >1x per week	75.9%	85.9%	+6.0 pct pts (+7.5%) (CI= +4.6, +10.5) p=.001	5 y
Ozminkowski 2000 Ozminkowski 1999 (1994-1997) Least (Before-after) for all participants Moderate (Retrospective cohort) for HR subset Fair (3 limitations)	Location: North America Components: All Participants: AHRF+ 1800 line + HRA completion incentive for low risk/high risk HR Subset: ACCENT Program - repeat risk-specific AHRF every 3 months (3x) + one outbound phone call. Late addition telephone counseling & HE. Comparison: Before-after for participants vs. non-	All active Citibank employees Varies from 1307-9234	Percent self- reporting exercise >45 minutes per week All HR	67% NR	72.7% NR	+5.7 pct pts (+8.5%) (CI= +3.0, +14.3) -11.5 pct pts	Mean 2 y

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	participants						
Pelletier 2004 Boles 2004 (2001-2002) Least (Before-After) Fair (3 limitations)	Location: USA; 7 locations Components: AHRF + HE + Incentives + Wellness Program + EH to PA Comparison: Before-After	Employees of large national employer. Participants were members of corporate-sponsored fitness centers in 7 locations throughout USA plus all of the employees in one field site. 5042 eligible 2264 1st survey 500 (22% of 2264 & 10% of eligible) pre & post respondents	Percent self- reporting physical activity >120 minutes per week	65.4%	66.4%	+1.0 pct pts (+1.5%) (CI= -7.1, +11) p=.635	1 y
Poole 2001 (1990-1994) Moderate (Prospective cohort) Fair (4 limitations)	Location: USA; Utah, Salt Lake County Components: AHRF + Incentives + Serial clinical measurements Comparison: Before-after (Cohort follow-up)	Employees of Salt Lake County who participated in the Healthy Lifestyle Incentive Program (HLIP) for 4 consecutive years 2540 eligible 845 signed up 714 (28%) began 304 at analysis.	Percent self- reporting being physically active ≥3x per week	59.5%	68.4%	+8.9 pct pts (15.0%) (CI= +1.9, +29.6)	4 y
Purath 2004 (NR) Greatest (Group Randomized Trial) Fair (4 limitations)	Location: USA Components: AHRF + HE Comparison: AHRF	Employees of a university 130 intervention group 151 comparison group	Self-reported minutes of vigorous/moderate exercise: Weekdays Intervention Comparison	 228.0 min 216.0 min	 249.0 min 219.6 min	 +17.4 minutes NS	 6 w

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
			Weekends Intervention Comparison	294.0 min 312.0 min	340.2 min 333.6 min	+24.6 minutes p=0.008	
			Total minutes walked per week Intervention Comparison	87.7 min 86.1 min	190.8 min 162.3 min	+26.9 minutes p=0.001	
Shimuzu 2003 1995-1998 Least (Before-after) Fair (3 limitations)	Location: Japan; Kanto area Components: AHRF+ Group activities + Individual activities+ Incentives Comparison: Before-after	Male employees who were working from April 1991 to March 1999 1029 employees	Percent self- reporting exercising >1 hour per week	38.4%	42.2%	+3.8 pct pts (+9.9%) (CI=-1.1, +22.1) p=.05	3 y
Shiplely 1988 Blair 1986 (1983-1985) Greatest (Group non- randomized trial) Good (1 limitation)	Location: NJ and PA: USA Components: AHRF + HE (group, ind., self-help kits, & phone) + EA + ROPC + Incentives + Env. Change. Comparison: AHRF	Employees of study companies who provided baseline and year 2 data 618 Intervention 337 Comparison	Percent self- reporting exercise >60 minutes per week in year 2: Intervention Comparison	N/A N/A	24.6% 12.5%	+12.1 pct pts (+98.6%) (CI= +45.5, +166.0)	2 y
Williams 2004 (NR) Least (Before-After) Fair (4 limitations)	Location: Georgia; USA Components: AHRF + HE Comparison: Before-After	Employees of rural and urban worksites 294 employees	Percent self- reporting physical activity: Urban Rural Aggregate	35.3% 36.1% 35.7%	34.0% 37.2% 35.7%	-1.3 pct pts (-3.7%) p=0.74 +1.1 pct pts (+3.5%) p=0.68 0.0 pct pts (0.0%)	1 y

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Wood 1989 (1985-1986) Least (Before-After Fair (4 limitations)	Location: USA Components: AHRF + HE + Incentives (for behavior change) Comparison: Before-After	Employees in field settings of General Mills 1200 eligible 688 (57%) participants in program 387 (32%) non- participants in program	Percent who self- reported exercising 3x per week	48.0%	71.0%	+23.0 pct pts (+48.0%)	1y

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			Effect measure	Results			
				Baseline value	Outcome value	Value used in summary	Follow- up time
Aldana 2002 Least (Before-After) Fair (3 limitations)	Location: Rockford, IL, USA Components: AHRF + HE (, facilitator, goal setting diet and exercise) Comparison: Before-after	Recruited companies in Rockford metro area: 6 Recruited participants in study companies Overall 453 bslne 442 (98%) at post 10 smokers at bslne	Self-reported smoking cessation at end of intervention period	0	2 (20.0%) of 10 smokers quit	20.0%	8w
Anderson 1999 Greatest (Group randomized trial) Fair (4 limitations) High risk targeting (cholesterol \geq 200mg/dl)	Location: Denver, CO; USA Components: Arm 1: AHRF + HE (group) Arm 2: AHRF + HE (self-help) Comparison: Usual care	Recruited worksites in the Denver area: 8 Recruited participants with baseline cholesterol \geq 200mg/dl 502 screened 234 recruited bslne Arm1 <u>Bslne</u> <u>12m f/u</u> Inter 64 35 (55%) Comp 118 61 (52%) Arm2 <u>Bslne</u> <u>12m f/u</u> Inter 52 26 (50%) Comp 118 61 (52%)	Self-reported prevalence of smoking (“currently smoking”) for subset with bslne and f/u data Intervention1 Intervention2 Comparison Note: Data permit calculation of smoking cessation rate among baseline smokers Intervention1 Intervention2 Comparison	17.9% 28.6% 18.9%	13.8% 25.0% 16.2% 4.1% 3.6% 2.65%	-1.4 pct pts (-7.8%) (CI=-16.0, +13.0) -0.9 pct pts(-3.1%) +1.4 pct pts(+53.0%) (CI=-6.0, +9.0) +0.95 pct pts (+36.0%) (CI -7.0, +9.0)	1 y
Baier 1992 (1988) Moderate (Time Series)	Location: Chicago, IL; USA Components: AHRF + HE	Participating employees of the study medical center who self-reported smoking	Self-reported smoking cessation at time of follow-up	NA	13.0%	13.0% NR	6m

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Note: 3m f/u survey results for smoking were not reported Fair (4 limitations)	(classes and materials) Comparison: Before-After	2255 workers (27% of eligible workers) at bsline N at 6m f/u =676 est (30% f/u responδ=rate)	among baseline smokers Note: Baseline prevalence rate for smoking was 15.9%. We can estimate N smokers =358				
Bertera 1993 (1984-1988) Least (Before-after) Fair (4 limitations) Note: Comparison provides baseline data only.	Location: USA (DuPont) Components: AHRF + HE (self-help; classes; meetings) + Incentives (set/make goals) + Enhanced access (physical activity; nutrition) + Environmental changes (smoking restrictions) Comparison: Usual care	Employees N Inter: 29,500 eligible Comp 60,000 eligible Recruited employees (Intervention subjects with bsline and f/u data) <u>% particip</u> 7178 intervention 24.3% 48,148 comparison 80.3%	Self-reported smoking prevalence Intervention Comparison Sufficient information is provided to calculate the cessation rate over the period of study for the intervention participants	22.58% 23.93% 1621 smokers	18.51% NA/NR 1329 smokers	-4.0 pct pts (CI= -5.4, -2.8) p=0.001 18.0% (NR) (292 quitters)	2y
Brill 1991 (NR) Least (Before-After) Fair (3 limitations)	Location: Dallas, TX; USA Components: AHRF + HE (diet and exerciδ=log) + Enhanced access to physical activity Comparison: Before-after	Participating school district: 1 Recruited employees 3873 at bsline (32.7% of eligible) 2680 (69% of recruited) at 10 wk N smokers: NR at bsline or at post	Self-reported smoking cessation among baseline smokers stratified by age <35 yrs 36-50 yrs >50 yrs		18.9% 10.6% 11.8%	18.9% (CI=+10.0, +28.0) 10.6% (CI=+5.0, +20.0) 11.8% (CI=+3.0,	10w

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
						+20.0)	
Edye 1989 Frommer 1990 (1977-1985) Greatest (Individual randomized trial) Fair (4 limitations)	Location: Sydney, Australia Components: AHRF + Health Education (extended counseling) Comparison: AHRF +	Participating government employees from two selected government organizations 4607 volunteers 2489 eligible 1937 at follow-up (78%) 861 intervention 1076 comparison	Self-reported prevalence of smoking (net pre- post change reported for each study arm) Intervention Comparison Note: Estimated prevalence at baseline (I=1118; C=1371)	41.2% 40.1%	-5.6 pct pts (δ =0.8) -5.1 pct pts (δ =0.7)	- 0.5 pct pts (δ =1.1) (CI= -4.8, +3.8) [Estimated -1.2%]	3 y
Erfurt 1991 ARM 2 Heirich 1993 Erfurt 1992 Erfurt 1990 Greg 1990 (1985-1988) Greatest (Group randomized trial) Fair (4 limitations) Note: Smoking results are best evaluated under the comparisons described in Erfurt 1991 study (the additional of a fitness facility in the comparison site is noted but impact on cessation is considered	Location: Detroit, MI, USA Components: AHRF + HE (; classes)+enhanced access (medical care) Comparison: AHRF +HE (smoking cessation classes offered in year 1) + (enhanced access physical activity and medical care) Note: Both arms included care referrals	Participating plants 4 (assigned to condition) Participating employees in study plants <u>Arm N bsline (part %)</u> Inter-2 1374 (88%) Comp 2448 (75%) Random sample for f/u and analytic subset <u>Arm N f/u (response%)</u> Inter-2 493 (82%) Comp 505 (84%)	Self-reported smoking prevalence in the subset of participants with f/u data Self-reported smoking cessation among baseline smokers in the subset of participants with f/u data	I: 45.0% C: 45.0% I: 223 smokers C: 228 smokers	I: 40.6% C: 41.6% 17.6% 17.1%	-1 pct pts (-2.2%) (CI= -7.1, +5.1) p<0.01 +0.5 pct pts NS (+2.9%) (CI= -7.0, +7.0)	3y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
here to be small)							
Erfurt 1991 ARM 3 Heirich 1993 Erfurt 1992 Erfurt 1990 Greg 1990 (1985-1988) Greatest (Group randomized trial) Fair (4 limitations)	Location: Detroit, MI, USA Components: AHRF + HE (; program sign-up campaigns; classes; high- risk counseling and f/u) + Enhanced access (medical care) Comparison: AHRF +HE (smoking cessation classes offered in year 1) + (enhanced access physical activity and medical care) Note: Both arms referred appropriate participants to care	Participating plants 4 (assigned to condition) Participating employees in study plants <u>Arm N baseline (part %)</u> Inter-3 2089 (82%) Comp 2448 (75%) Random sample for f/u and analytic subset <u>Arm N f/u (response%)</u> Inter-3 482 (80%) Comp 505 (84%)	Self-reported smoking prevalence in the subset of participants with f/u data Self-reported smoking cessation among baseline smokers in the subset of participants with f/u data	I: 41.0% C: 45.0% I: 197 smokers C: 228 smokers	I: 36.1% C: 41.6% 20.3% 17.1%	-1.5 pct pts (-3.3%) (CI= -7.6, +4.6) p<0.001 +3.2 pct pts (+18.7%) (CI= -4.0, +11.0) NS	3 y
Erfurt 1991 ARM 4 Heirich 1993 Erfurt 1992 Erfurt 1990 Greg 1990 (1985-1988) Greatest (Group randomized trial) Fair (4 limitations) Note: Smoking results are best evaluated under the comparisons described in Erfurt 1991 study (the additional of a fitness facility in the comparison site is noted but impact on cessation is considered here to be small)	Location: Detroit, MI; USA Components: AHRF + HE (; program sign-up campaigns; classes; counseling and f/u) + Enhanced access (physical activity, medical care) + Environmental support policies (plant organization) Comparison: AHRF +HE (smoking classes) + (enhanced access physical activity, medical care) Note: Both arms referred appropriate participants to care	Participating plants 4 (assigned to condition) Participating employees in study plants <u>Arm N baseline (part %)</u> Inter-4 1893 (83%) Comp 2448 (75%) Random sample for f/u and analytic subset <u>Arm N f/u (response%)</u> Inter-4 403 (81%) Comp 505 (84%)	Self-reported smoking prevalence in the subset of participants with f/u data Self-reported smoking cessation among baseline smokers in the subset of participants with f/u data	I: 36.0% C: 45.0% I: 143 smokers C: 228 smokers	I: 31.0% C: 41.6% I: 18.9% C: 17.1%	-1.6 pct pts (-3.6%) (CI= -7.8, +4.6) p<0.001 +1.8 pct pts (+10.5%) (CI=-6.0, +10.0) NS	3 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Erfurt 1991b (NR) Least; (Before-after) Fair (4 limitations)	Location: Detroit, MI; USA; Components: AHRF + HE (extended counseling) + Reduced out-of-pocket costs Comparison: Before-after	Recruited worksites: 3 (1-year results only for site 2) 77 employees at site 2 (100% participation)	Self reported prevalence of "currently smoking"	26.0%	13.0%	-13.0 pct pts (-50.0%) (CI=-25.0, -0.7)	1 y
Fitzgerald 1991 NR Greatest (Individual Randomized Trial) Fair (4 limitations)	Location: Baltimore, MD; USA Components: AHRF + Screening + ROPC + Client reminder + HE Comparison: AHRF	Employees in 5 worksites for Blue Cross Blue Shield Maryland 2000 eligible employees 836 participants 262 followed up Subset of smoking participants Intervention 21 Comparison 30	Self-reported smoking cessation Inter 4 of 21 Comp 2 of 30		19.0% 7.0%	+12 pct pts (+171%) (95%CI -7, +31) p=0.21	1-2 m (6 wks)
Goetzel 2002 Ozminkowski 2002 (1995-1999) 2 Comparisons Least; (Before-after) Moderate (retrospective cohort by participation in high-risk intervention program) Fair (4 limitations) High or borderline risk study population plus a subset analysis of participants in high-risk interventions	Location: USA Components: AHRF (mail) + Incentives (participation) + HE (mailings + trainings + high-risk intervention programs) Comparison: Before-after	Recruited employees at borderline or high risk who participated in at least two assessments (HRAs) over a defined study period (43,000) employees 4586 with 2 assessments (HRAs)	Self-reported prevalence of <u>any</u> <u>tobacco</u> <u>u0304</u> (N=4586) Note: sufficient data is provided to calculate smoking cessation rates for this study population Note: Comparison of self-reported <u>cigarette</u> smoking Participants (n=2301) Non-participants	39.2% NA (1798 smokers) 10.0%	27.6% NR (1266 smokers) 7.5%	-11.6 pct pts (-29.6%) (CI= -13.5, -9.7) p<0.0001 29.6% (532 tobacco users quit) -2.5 pct pts p<0.0001	Median 32 m

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
			(n=2285) Note: sufficient data is provided to calculate smoking cessation rates for this comparison Participants Non-participants	61.0% 230 smokers 1394 smokers	44.2% 173 smokers 1010 smokers	-16.8 pct pts p<0.0001 Overall Difference= +14.3 pct pts (+23.4%) p<0.0001 24.8% 27.5% Difference= -2.7 pct pts	
Goetzel 1996 (1989-1992) Least (Before-after) Fair (4 limitations) Live for Life: Duke	Location: North Carolina; USA (Duke University) Components: AHRF + HE (; lifestyle programs, high-risk programs) + Reduced out-of-pocket costs Comparison: Before-after	Duke University employees 15,500 eligible Participants in the baseline HRA 4424 Random sample f/u 1868 selected 805 (45.5%) responded and included in analysis	Percent who "Need to Improve" (Smoking Cessation) Note: Sufficient info. is provided to calculate smoking cessation rates for this subset	15.0% 120 smokers	12.0% 97 smokers	-3.0 pct pts (-20.0%) (CI= -6.0, +0.3) p<0.05 19.2% (23 fewer smokers)	Mean 3.3 y
Goetzel 1994 (1985-1991) Two comparisons Least (Before-after) Moderate (retrospective cohort) Fair (4 limitations) IBM's "A Plan for Life"	Location: USA Components: AHRF + HE (courses; classes for 16 topics) + Reduced out-of-pocket costs (tuition assistance; courd=fees) Comparisons: 2 types	IBM worksites nationwide: NR Participating employees in study worksites 93,807 employees with one HRA 9162 (9.8%) workers with a f/u HRA Baseline smokers by HE participation (1199)	Self-reported tobacco smoking prevalence Self-reported tobacco smoking cessation compared based on use of Health Education	16.9% Non-participants 33.0% (376)	12.5% Participants 49.2% (30 of 61)	-4.4 pct pts (-26.0%) (CI= -5.4, -3.4) p<0.05 +16.2 pct pts (CI= +3.0, +29.0)	Mean 4.1 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
	Overall: Before-after Subset: HE participants vs nonparticipant	Part 61 Non-part. 1138	program OR adjusted for age, sex, time to f/u, bsline value	of 1138)		Adj. OR=2.0 (+49.0%) (CI= +1.2, +3.4)	
Gomel 1993 ARM 3 Gomel 1997 Olednburg 1995 (NR) Greatest (Group Randomized Trial) Fair (4 limtations)	Location: Sydney, Australia Components: AHRF ++ HE (counseling and materials) Comparison: AHRF	Recruited smokers in random sample of 28 ambulance service worksites 25 intervention group 31 comparison group	Verified continuous smoking cessation Intervention Comparison Verified point smoking cessation Intervention Comparison	NA (0%) NA (0%) NA (0%) NA (0%)	10.0% 0.0% 20.0% 5.0%	+10.0 pct pts (CI= -7.0,+24.0) (relative chg INF) NS +15.0 pct pts (+300%) NS	1 y
Gomel 1993- ARM 4 Gomel 1997 Olednburg 1995 (NR) Greatest (Group Randomized Trial) Fair (4 limtations)	Location: Sydney, Australia Components: AHRF (serial) + HE (counseling and materials) + Incentives (for behavior change) Comparison: AHRF + Feedback	Recruited smokers in random sample of 28 ambulance service worksites 32 intervention group 31 comparison group	Verified continuous smoking cessation Intervention Comparison Verified point smoking cessation Intervention Comparison	NA (0%) NA (0%) NA (0%) NA (0%)	3.5% 0.0% 3.0% 5.0%	+3.5 pct pts (infinity) (CI= -3.0, +10.0) NS -2.0 pct pts (-40%) NS	1 y
Holt 1995 (1983-1988) Least (Before-after) Fair (4 limitations)	Location: USA Components: AHRF + HE (modules; programs 4-12 wks each) + Enhanced Access (physical activity; nutrition) Comparison: Before- after	Recruited AT&T worksites 7 Participating employees (completed HRA in 1983) 2047 Subset of bsline participants with f/u	Self-reported smoking prevalence Note: Sufficient information is reported to permit a	1983 18.0% 113	1988 11.0% 69 smokers	-7.0 pct pts (-38.9%) (CI= -10.0, -3.0) p<0.001 38.9%	5 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
		HRA in 1988 used in this analysis 629 (31%)	calculation of the smoking cessation rate	smokers		(44 fewer smokers)	
Kronenfeld 1987 (1983-1984) Greatest (Other design with concurrent comparison) Fair (4 limitations)	Location: Columbia, SC; USA Components: HRAs offered (assessment, biometrics, implied feedback) + HE (promotions and programs) + Policy change (healthstyle committees, smoking policies; nutritional choice policies) Comparison: HE; on site information sessions)	State office worksites in Columbia, SC; USA area <u>Offices</u> <u>Neligible</u> <u>Npart</u> Inter NR 18 Comp NR NR 10% stratified random sampling of employees <u>Time</u> <u>Ninvited</u> <u>Nresp</u> 1 1288 854(66.3%) 2 NR NR (70%) N subset responding at time1 and time 2 Inter 142 Comp 313	Self-reported smoking status (prevalence) Intervention Comparison Note: Unclear whether or not the authors used point prevalence estimates for entire sample in each survey (at time1 & time 2), or restricted prevalence analysis to the subset of respondents to both surveys.	30.0% NR	26.0% NR (reported as no change from baseline)	-4.0 pct pts (-13.3%) NS	1 y
Musich 2003 (1996-2001) Moderate (Time series) Fair (4 limitations)	Location: USA Components: AHRF + HE (universal and targeted materials, groups, telephone support) + Reduced out-of- pocket costs (vouchers for health care) Comparison: Time Series	General Motors Corporation plants with a comprehensive program in place 2 Employees N eligible: NR Subset of participating employees with 3 HRAs in 5 years 2141	Self-reported smoking prevalence Note: Sufficient information is provided to calculate smoking cessation rates for this subset of participants	13.5% 289 smokers	10.3% 220 smokers	-3.2 pct pts (-24%) (CI= -5.0, - 1.0) p<0.001 23.8% (69 fewer smokers)	5 y
Nilsson 2001 (NR) Greatest (Individual, randomized trial)	Location: Sweden; Helsingborg Components: AHRF + HE	Public sector worksites 4 Recruited employees 454 of 568 at initial screen	Self-reported daily smoking (proxy for cessation activity since a change to				18m

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Fair (4 limitations) High CV risk participants	(individual counseling; group sessions) Comparison: AHRF (standard advice)	Participants with elevated CV risk score assigned to condition <u>Group N</u> <u>baseline N</u> <u>18m</u> Inter 65 43 (66%) Comp 63 46 (73%)	less-than-daily smoking would be counted as a quit) Intervention Comparison Sufficient Information is provided to permit calculation of cessation in this study sample Intervention Comparison	65.0% 65.0%	40.0% 59.0%	-19.0 pct pts (-29.0%) (CI = +8.0, +50.0) p=0.03 39.3% (11 quits) 10.0% (3 quits) +29.3 pct pts (+293.0%)	
Ozminkowski 2000 (1994-1997) Least (Before-After overall) Moderate (retrospective cohort for high risk subset) Fair (4 limitations) Overall effects plus a subset comparison of high-risk program participants vs non-participants	Location: North America Components: AHRF + Incentive (HRA completion) + HE + ACCENT (high risk focused Health Ed) Comparison Overall: Before-after High risk subset: ACCENT participants vs. non-participants	Citibank employees 47,838 eligible 25,931 (54.3%) participated Analysis on a subset of participants who completed 2 HRAs at least 180 days apart 9234 (35.6% of initial participants) ACCENT analysis Participants: 3454 Non-participants:NR	Overall: Self-reported prevalence of smoking Note: Sufficient data is presented to calculate a smoking cessation rate High Risk subset comparison Participants Non-participants	11.9% NA (1099 smokers)	11.4% NR (1053 smokers) -1.6 pct pts -0.4 pct pts	-0.5 pct pts (-4.2%) p≤0.05 4.1% (46 quitters) -1.2 pct pts p≤0.05	Mean 2 y
Pelletier 2004 Boles 2004 (2001-2002)	Location: Northeast USA Components: AHRF + HE	Participating large, national employer in the Northeast	Self-reported status as current or previous tobacco	8.6%	7.2%	-1.4 pct pts (-16.3%) (CI= -4.7,	1 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Least (Before-after) Fair (3 limitations)	(wellness programs) + Enhanced access to physical activity (fitness services offered) + Incentives (lottery gifts) Comparison: Before-after	Employees: 5042 eligible Baseline participants: 2264 (45%) 1 year f/u participants (analytic sample) 500 (22% of bsline)	user (proxy for prevalence) Sufficient information is provided to calculate the cessation rate over the period of study for the intervention participants with f/u	(43 current or previous tobacco users)	(36 current or previous tobacco users)	+1.9) p=0.143 16.3% change rate (loss of 7 current or former users) NR (NS)	
Poole 2001 (1990-1994) Moderate (Time series) Fair (4 limitations)	Location: Salt Lake City, UT, USA Components: AHRF + Incentives (rewards for engaging in healthy lifestyle behaviors) Comparison: Time series	Worksites of the county government NR County employees 2540 eligible 714 (28%) initiated 304 (11.9% of eligible) at 4 yr f/u	Self-reported prevalence of current smoking status (higher risk category) Note: Sufficient information is provided to calculate smoking cessation rate for this subset of participants	10.1% (31 smokers)	7.8% (26 smokers)	-2.3 pct pts (-23%) p=0.001 22.6% (7 quitters)	4 y
Puska 1988 (1984-1985) Greatest (Group non- randomized Trial) Fair (4 limitations)	Location: Finland; North Karelia Components: AHRF + HE (mass media;) Comparison: AHRF + (HE- exposure to mass media series)	Selected worksites in region Inter: 8 worksites Comp: 8 worksites Recruited employees in study worksites Numbers <u>Grp Elgbl bsln 1yr %</u> I 425 391 351 89 C 290 258 225 87	Self-reported current smoker Intervention Comparison Self-reported smoking cessation among baseline smokers Intervention	39.0% 33.0%	30.0% 33.0%	-9.0 pct pts (-23.0%) (CI=-16.8,- 1.2) p<0.05 +11.0 pct pts (+183%) (CI= +3.0,	1 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
			Comparison	NA	6.0%	+19.0) p<0.05	
Shi 1992 ARM 3 Shi 1993 (1988-1990) Greatest (Group randomized trial) Fair (3 limitations)	Location: Northern California; USA Components: AHRF + HE (classes, workshops; social support) Comparison: AHRF	Employees of Pacific Gas & Electric Participants and Participation Rates <u>Arm</u> <u>Bsline</u> <u>2 yr</u> Inter 645 453 (64%) (45%) Comp 1030 735 (75%) (53%)	Self-reported prevalence of smoking status Intervention Comparison	 24.0% 18.0%	 15.0% (Δ: p<0.01) 12.0% (Δ: p<0.01)	 -3.0 pct pts (-12.5%) (CI= -7.0, +1.0) NR	1 y
Shi 1992 ARM 4 Shi 1993 (1988-1990) Greatest (Group randomized trial) Fair (3 limitations)	Location: Northern California; USA Components: AHRF + HE (classes, workshops; social support; HR cañ=management) +Incentives (undefined) + Enhanced access (physical activity) + Environmental policies (smoking) Comparison: AHRF	Employees of Pacific Gas & Electric Participants and Participation Rates <u>Arm</u> <u>Bsline</u> <u>2 yr</u> Inter 427 278 (62%) (42%) Comp 1030 735 (75%) (53%)	Self-reported prevalence of smoking status Intervention Comparison	 14.0% 18.0%	 8.0% (Δ: p<0.01) 12.0% (Δ: p<0.01)	 +0.0 pct pts (0%) (CI= -4.0, +4.0)	12m
Shimizu 2003 Least (Before-after) Fair (4 limitations) Male employees only	Location: Japan (Kanto area) Components: AHRF (health check-up) + HE + Incentives Comparison: Before-after	Study plant with about 2000 workers Male employees employed throughout period 1991-1999 1029 (53% of male employees in 1991) 1991-1995 pre 1995-1998 post	Self-reported smoking prevalence Note: Sufficient information is provided to permit a calculation of smoking cessation	52.7% 542 smokers	50.9% 524 smokers	-1.8 pct pts (-3.4%) (CI= -6.0, +2.5) p<0.05 Cessation rate 3.3% (18 quitters)	3 y

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Author & year (study period) Design suitability (design) Quality of execution (# of Limitations) Evaluation setting	Intervention and comparison elements	Study population description Sample size	TOBACCO				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
			rate (all change presumed due to quits)				
Shiplee 1988 Greatest (Group non- randomized trial) Good (1 limitation) Live for Life Overall change and subset of participants at baseline high risk for CHD	Location: New Jersey and Pennsylvania; USA Components: AHRF + HE (including smoking cessation classes) + (smoking restrictions in some settings) Comparison: AHRF	Company plants Intervention: 4 plants Comparison: 3 plants Recruited employees (75% at baseline) with f/u data (% f/u of bsline) Overall Inter: 1399 (95.2%) Comp 748 (94.3%) High CHD risk bsline Inter 306 Comp 233	Self-reported cessation by baseline smokers (verification attempted) Intervention Comparison High CHD risk subset (I + C = 148 smokers) Intervention Comparison	381 smokers 258 smokers	22.6% 17.4% 32.0% 12.9%	+5.2 pct pts (+30.0%) (CI= -1.0, +11.0) p=0.12 +19.0 pct pts (+147%) p<0.01	14.8 m
Sorensen 2002 (1997-1999) Greatest (Group Randomized Trial) Fair (4 limitations)	Location: Eastern Massachusetts; USA Components: AHRF + HE + Contests (for behavior change) + Other (environmental policy consultation) Comparison: AHRF + HE + Contests	Employees of recruited manufacturing worksites (15 sites) Participants in study sites <u>Group</u> <u>Bsline</u> <u>F/u</u> Inter 4636 3617 Comp 4383 3710 Study participants at both baseline + follow-up <u>N</u> <u>Nsmokers</u> Inter: 2644 436 Comp: 2512 389	Self-reported adjusted smoking prevalence Intervention Comparison Adjusted 6 month self-reported cessation rates in baseline smokers	20.3% 18.7%	16.2% 16.8%	-2.2 pct pts (-10.8%) (CI= -3.9,-0.05) p=0.18	2 y

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
			with complete data Intervention Comparison	NA (0%) NA (0%)	11.3% 7.5%	+ 3.8 pct pts (+51.0%) (CI= -0.1, +7.7) p=0.17 Adj OR=1.57	
Sorensen 1998 Sorensen 1995 (1990-1993) Greatest (Group Randomized Trial) Fair (4 limitations)	Location: Eastern and Central Massachusetts; USA Components: AHRF + HE + Incentives (participation) Comparison: AHRF + Incentives (participation)	Employees of 24 worksites 2658 participants completed baseline and follow-up surveys 2386 included in analysis <u>Group N Nsmokers</u> Inter NR NR Comp NR NR	Self-reported smoking cessation Intervention Comparison Note: Smoking prevalence in the study subset was 23% at BL.. We can estimate N smokers =274 in each arm	NA (0%) NA (0%)	15.0% 9.0%	+6.0 pct pts (+167.0%) (CI= +0.5, +11.0)	6 m
Sorensen 1996 (1990-1993) Greatest (Group randomized trial) Fair (3 limitations)	Location: USA; worksites in 16 states Components: Assessments + feedback + HE (; classes; support groups) +Enhanced access (nutrition) + Incentives (participate in activities) + Smoking policies Comparison: HE (; summary survey results)	Smoking results represent 3 study centers and 84 worksites Permanent employees in all 108 study worksites at analysis baseline: 20,081 Mean participation 72% f/u: Not reported Mean f/u rate: 71% Note: Smoking results based on worksite as unit of analysis (84)	Self-reported prevalence of smoking at study worksites (n=84) Note: recalculated after including baseline values Intervention Comparison Self-reported 6m duration abstinence at f/u among baseline smokers and quitters (proxy	24.5% 25.8%	21.2% 21.8%	+0.7 pct pts (NR)	2 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
			for cessation) Intervention Comparison	NR NR	13.8% 12.3% Difference= -0.66 pct pts (CI= - 3.0, 1.2)	+1.5 pct pts (+12.0%) (CI= -1.0,+3.7)	
WHO 1986 WHO 1983;1982; 1980 (6 year study period) European Collaborative Trial of Multifactorial Prevention of Coronary Heart Disease Greatest (Group randomized Trial) Fair (4 limitations)	Location: Europe (Belgium, Italy; Poland; UK) Components: AHRF (CV risk)+ Screening + Referral (HTN) + HE (; counseling for high risk subset) Comparison: AHRF (o/w usual care)	Recruited men in study worksites (factories) ages 40-59 Initial participation was 87% of invited Overall participants <u>Group</u> <u>N analysis</u> Inter 24,615 Comp 25,169 High CV risk participants Inter 4770 Comp NR	Self-reported smoking prevalence Intervention Comparison Subset Analysis Self-reported smoking prevalence in high CV risk subset Intervention Comparison	60.0% NR 82.0% NR	NR NR NR NR	-1.1 pct pts (-1.9%) -5.6 pct pts (-6.8%)	6 y
Wood 1997 (1985-1991) Moderate (Time series) Fair (4 limitations) Note: Partial overlap with Wood 1989 study	Location: USA Components: Repeated assessments (yrs 1, 2, 4,6) + HE (self-help;) + Incentives (completing activities) Comparison: Time series	Sales employees participating in General Mill's TriHealthalon N targeted = 941 Data analysis on the subset of 4 time HRA participants 218 (23% of targeted)	Self-reported point smoking prevalence Note: Sufficient information is provided to calculate smoking cessation rate for this subset	15.0% 33 smokers	9.0% 20 smokers	-6.0 pct pts (-40.0%) (CI= -12.0, +0.1) NR 39.0% (13 smokers at baseline quit over 6 years)	6 y
Wood 1989 (1985-1986) Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE + Incentives (for behavior	Employees in field settings of General Mills 1200 eligible	Self-reported smoking status prevalence	21.0%	16.0%	-5.0 pct pts (-23.8%) (CI= -9.0, -0.9)	1 y

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
	change) Comparison: Before-After	688 (57%) participants in program 387 (32%) non- participants in program					

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Author & year (study period) Design suitability (design) Quality of execution (# of Limitations) Evaluation setting	Intervention and comparison elements	Study population description Sample size	SEAT BELTS				
			Effect measure	Results			
				Baseline value	Outcome value	Value used in summary	Follow- up time
Bertera 1993 (1984-1985; 1986-1988) Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE (group) + Environmental Changes + EA PA + Incentives (for behavior change) Comparison: Before-After	Employees of a large manufacturing company with more than 100 locations 7,178 intervention group	Percent of seat belt non-use among those self-reporting using seat belts <75% of the time (n=2677)	64.3%	36.1%	-28.2 pct pts(-43.9%) (CI= -47.1, -40.6) p<.001	2y
Dunton 1990 (1984) Greatest Suitability (Group Randomized Trial) Fair (4 limitations)	Location: Illinois and Pennsylvania; USA Components: AHRF + HE with Incentives Comparison: Usual care	Employees of manufacturing companies Illinois: 200 Intervention group 200 comparison group Pennsylvania: 460 Intervention group 588 comparison group	Percent of directly observed seat belt use (converted to non-use) IL—Intervention IL—Comparison PA—Intervention PA—Comparison	82.8% 80.1%	65.3% 72.8%	-10.2 pct pts(-13.2%) (CI= -23.9, -1.0) -5.7 pct pts (-6.2%) (CI= -10.2, -2.0)	2-3 m
Goetzel 2002 (1995-1999) Moderate (Retrospective cohort) Fair (4 limitations)	Location: USA Components: AHRF + HE Comparison: Before-After (participants vs. non- participants)	Employees of Johnson & Johnson 4586 study population 2301 participants in Pathways to Change (PTC) program 2285 non-PTC participants	Percent self- reporting often not using seat belt: HR (PTC) LR (non-PTC) Percent HR	3.7% 5.5% 4.5%	2.3% 3.2% 2.7%	-1.4 pct pts (-37.8%) p=.0003 -2.3 pct pts (-41.8%) p<.0001 -1.8 pct pts (-40%) (CI= -51.8, -25.3) p<.0001	33 m

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Kronenfeld 1987 (1983-1984) Greatest (Other design with concurrent comparison group) Fair (4 limitations)	Location: Columbia, SC; USA Components: AHRF + HE + Policy Comparison: HE	Two-county region; Potential target population 13,000 State employees 854 baseline F/U 142 Intervention 313 Comparison	Percent self- reporting seat belt use <75% of the time Intervention Comparison	85.5% 83.6%	80.4% 78.4	0.1 pct pts (0.27%)	10m
Merrill 1984 1982-1983 Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE Comparison: Before-after	Comparison Data Corporation employees 1982: 2,479 (50%) 1983: 1,468 (61%)	Percent self- reporting never using seat belts	39.2%	37.7%	-1.5 pct pts (-3.8%) (CI= -11.4, +4.4)	1 y
Musich 2003 Schultz 2002 Yen 2001 (1996-2001) Least (Before-After) Fair (4 limitations)	Location: USA; Michigan Components: AHRF + Screening + HE (individual & group) + ROPC (vouchers) Comparison: Before-after	Employees of General Motors Corporation 2141	Percent self- reporting wearing seat belts <90% of the time	22.3%	8.8%	-13.5 pct pts(-60.5%) (CI= -66.3, -53.8) p=.001	4 y
Ozminkowski 2000 Ozminkowski 1999 (1994-1997) Least (Before-after) for all participants Moderate (Retrospective cohort) for HR subset Fair (3 limitations)	Location: North America Components: All Participants: AHRF+ 1- 800 line + HRA completion incentive for low risk/high risk HR Subset: ACCENT Program - repeat risk-specific AHRF every three months (3x) + one outbound phone call. Late addition telephone counseling & HE. Comparison: Before-after for participants vs. non- participants	All active Citibank employees Varies from 1307-9234	Percent self- reporting using seat belts <90% of the time: All HR	21.2% NR	14.7% NR	-6.5 pct pts (-30.7%) (-41.7, -17.6) -11.3 pct pts	
Poole 2001 (1990-1994)	Location: USA; Utah, Salt Lake County	Employees of Salt Lake County who participated in the Healthy Lifestyle	Percent self- reporting use seat				

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Moderate (Prospective cohort) Fair (4 limitations)	Components: AHRF + Incentives + Serial clinical measurements Comparison: Before-after (Cohort follow-up)	Incentive Program (HLIP) for 4 consecutive years 2540 eligible 845 signed up 714 (28%) began 304 at analysis.	belts \leq 75% of the time (HR): Yr 1- Yr 2 Yr 1- Yr 3 Yr 1- Yr 4	 22.4% 22.4% 22.4%	 17.1% 8.6% 6.9%	 -5.3 pct pts (-23.7%) -13.8 pct pts(-61.6%) -15.5 pct pts(-69.2%) (CI= -80.6, -51.1)	4 y
Weinstein 1986 NR Greatest (Group non-randomized trial) Fair (3 limitations)	Location: New Brunswick, New Jersey; USA Components: AHRF + HE + EA + ROPC + incentives + environmental change Comparison: Usual Care	Johnson & Johnson Corporate headquarters Employees. 778 participants	Percent of morning drivers with observed seat belt use (converted to non-use): North-Intervention North-Comparison South-Intervention South-Comparison	 68.9% 81.4% 69.8% 81.4%	 50.0% 78.3% 59.7% 78.3%	 -15.8 pct pts(-24.6%) (CI= -34.9, -12.6) -7.0 pct pts (-11.1%) (CI= -21.9, +1.2)	6 m
Wood 1989 (1985-1986) Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE with Incentives Comparison: Before-After	Employees in field settings of General Mills 688 program participants	Percent self-reported seat belt use (converted to non-use)	56.0%	19.0%	-37.0 pct pts(-66.1%) (CI= -71.3, -59.9)	1 y

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			Effect measure	Baseline value	Results		Follow- up time
					Outcome value	Value used in summary	
Aldana 2002 (2000-2001) Least (Before-After) Fair (3 limitations)	Location: Rockford, IL; UISA Components: AHRF + HE Comparison: Before-After	Employees of 6 worksites 453 eligible 442 completed baseline and follow-up	Mean systolic blood pressure (mm Hg) Mean diastolic blood pressure (mm Hg)	135.0 81.4		-8.6 mm Hg (-6.3%) p=0.02 -5.3 mm Hg (-6.5%) p=0.02	8 w
Aldana 1993c (1989-1991) Moderate (Time Series) Fair (2 limitations)	Location: Southwestern; USA Components: AHRF + HE with Incentives Comparison: Time Series	Employees of a large manufacturing company 943 employees completed the baseline screening 113 employees completed baseline and follow-up screenings	Mean systolic blood pressure (mm Hg) Mean diastolic blood pressure (mm Hg)	112.8 72.6	108.3 71.2	-4.5 mm Hg (-4.0%) -1.4 mm Hg (-1.9%)	18 m
Anderson 1999 Greatest (Group randomized controlled trial) Fair (3 limitations)	Location: Denver, CO; USA Components: Arm 1: AHRF + HE (group) Arm 2: AHRF + HE (self-help) Comparison: Usual care	Employees of eight small worksites 234 participants at baseline 118 usual care group 116 intervention group	Arm 1: Mean systolic blood pressure (mm Hg) Mean diastolic blood pressure (mm Hg) Arm 2: Mean systolic blood pressure (mm Hg) Mean diastolic blood pressure (mm Hg)	I: 120.9 C: 119.0 I: 78.6 C: 77.4 I: 116.2 C: 119.0 I: 74.8 C: 77.4	I: 121.8 C: 121.2 I: 76.5 C: 78.2 I: 114.8 C: 121.2 I: 76.5 C: 78.2	-1.3 mm Hg (-1.1%) -2.9 mm Hg (-3.7%) -3.6 mm Hg (-3.0%) +0.9 mm Hg (1.2%)	1 y
Anderson 1994 (NR) Least (Before-After) Fair (4 limitations)	Location: Midwest; USA Components: AHRF + HE Comparison: Before-After	Employees of a manufacturing corporation 70 eligible 44 completed baseline and follow-up	Mean systolic blood pressure (mm Hg) Mean diastolic blood pressure (mm Hg)	132.2 80.7	123.4 76.4	-8.8 mm Hg (-6.7%) p=.0015 -4.3 mm Hg (-5.3%) NS	3.5 m

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Baier 1992 (1988) Moderate (Time Series) Fair (4 limitations)	Location: Chicago, IL; USA Components: AHRF + HE Comparison: Time Series	Employees of Health Service of Rush-Presbyterian St. Lukes Medical Center 2255 completed a health risk assessment 2251 successful measurements for blood pressure 234 completed baseline and follow- up	Mean change in systolic blood pressure (mm Hg) Mean change in diastolic blood pressure (mm Hg)	NA NA	NR NR	-2.3 mm Hg -1.9 mm Hg	6 m
Bertera 1993 (1984-1985; 1986-1988) Least (Before-after) Fair (4 limitations)	Location: USA Components: AHRF + HE (group) + Environmental Changes + EA PA + Incentives (for behavior change) Comparison: Before-after	Employees of a large manufacturing company with more than 100 locations 7,178 intervention group	Mean (sd) systolic blood pressure (mm Hg)	121.3 (0.29)	121.6 (0.35)	+0.3 mm Hg (+0.2%)	2 y
Brill 1991 1982-1983 Least (Before-After) Fair (3 limitations)	Location: Dallas, TX; USA Components: AHRF + HE + EA PA Comparison: Before-after	Employees of the Dallas, TX Independent School District (DISD) 2680	Mean change in systolic blood pressure (mm Hg)	NA	NR	-1.4 mm Hg	10 w
Donnelly 1996 (1993) Least (Before-After) Fair (3 limitations)	Location: Akron, OH;USA Components: AHRF + HE + EA PA + Comparison: Before-After	Employees of Sterling, Inc. - a Employees of Sterling, Inc. - a national retail jewelry store chain 10,000 total employees 338 participants- 133 middle men 35 senior managers	Percent with elevated risk for : Overall blood pressure	23.0%	11.0%	-12.0 pct pts (-52.2%) (CI= -17.6, -6.4)	7 m

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Edye 1989 Frommer 1990 (1977-1985) Greatest (Individual randomized trial) Fair (4 limitations)	Location: Sydney, Australia Components: AHRF + HE Comparison: AHRF	Participating government employees from two selected government organizations 4607 volunteers 2489 eligible 1937 follow-up 861 Intervention 1076 Comparison	Mean change in: Systolic blood pressure (mm Hg) Intervention Comparison Diastolic blood pressure (mm Hg) Intervention Comparison	NA	-2.96 -1.82 -0.39 +0.02	-1.1 mm Hg -0.4 mm Hg	3 y
Erfurt 1991 (NR) Least (Before-After) Fair (3 limitations)	Location: Detroit, MI; USA Components: AHRF + HE	Employees of an aircraft repair and maintenance service company	Percent HR Systolic blood pressure (mm Hg) Diastolic blood pressure (mm Hg)	5.0% 10.0%	3.0% 5.0%	-2.0 pct pts (-40.0%) (CI= -8.2, +4.2) -5.0 pct pts (-50.0%) (CI= -13.3, +3.3)	1 y
Fielding 1994 (NR) Greatest (Individual Randomized Trial) Fair (2 limitations)	Location: CA, FL, GA & TX; USA Components: AHRF + HE Comparison: Provider Referral	Employees at the participating worksites 74 employees in the intervention group 71 employees in the comparison group	Mean blood pressure (mm Hg) Systolic Intervention Comparison Diastolic Intervention Comparison	149.0 146.9 91.6 88.2	138.1 144.5 86.0 86.5	Adjusted means: -7.6 mm Hg -2.4 mm Hg	1 y
Goetzel 2002 (1995-1999) Moderate (Retrospective cohort) Fair (4 limitations)	Location: USA Components: AHRF + HE + Incentives for participation Comparison: Before-After (participants vs. non- participants)	Employees of Johnson & Johnson 4586 study population 2301 participants in Pathways to Change (PTC) program 2285 non-PTC participants	Percent with high risk blood pressure reading (SBP≥140 or DBP≥90): HR (PTC) LR (non-PTC)	14.1% 6.6%	11.3% 6.4%	-2.8 pct pts (-19.9%) p=0.0003 -0.2 pct pts (-3.0%) p=0.7925	32 m

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Goetzel 1996 Knight 1994 (1989-1992) Greatest (Prospective Cohort) Fair (4 limitations)	Location: USA; North Carolina; Duke University Components: AHRF + HE + High-risk programs + ROPC Comparison: Before-after (cohort f/u subset)	University employees enrolling in the ongoing health promotion program (voluntary) selected =1868 Responded=805 (45.5%)	Change in percent with high risk blood pressure reading (SBP≥140 or DBP≥90)	11.0%	14.0%	+3.0 pct pts (+27.3%) (CI= -0.2, +6.2) p=0.05	3.3 y
Goetzel 1994 Sepulveda, 1994 (1985-1991) Moderate (Retrospective Cohort) Fair (4 limitations)	Location: Sommers, NY; USA Components: AHRF + HE + ROPC Comparison: AHRF (at BL only)	Employees of IBM Intervention 84,650 Comparison 9,162	Mean change in blood pressure (mm Hg):				4.1 y
			Systolic Participants (n=138) Non-participants (n=727)		-14.8 -9.2	-4.8 mm Hg (CI=-2.1, -7.5)	
			Diastolic Participants (n=209) Non-participants (n=1012)		-7.8 -6.9	-1.3 mm Hg (CI=0, - 2.6)	
			Change in percent with high risk blood pressure:				
			Systolic Participants (n=138) Non-participants (n=727)	100% 100%	27.5% 48.1%	-20.6 pct pts (-42.8%) (CI= -28.9, -12.3)	
			Diastolic Participants (n=209) Non-participants (n=1012)	100% 100%	34.9% 43.7%	-8.8 pct pts (-20.1%) (CI= -15.9, -1.7)	
Gomel 1993 Gomel 1997 Oldenburg 1995	Location: Sydney, Australia Components:	Employees of ambulance services 431 recruited	Mean blood pressure: Intervention-1	97.6	95.2	-2.2 mm Hg (-2.2%)	1 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
(NR) Greatest (Group randomized trial) Fair (4 limitations)	Intervention 1(I1): AHRF + HE; Intervention (I2): AHRF + HE with incentives Comparison: AHRF	(I1)= 102 at follow-up (I2)= 77 at follow-up (C)= 115 at follow-up	Intervention-2 Comparison	95.9 96.5	97.6 96.3	+2.0 mm Hg (+2.0%)	
Guico-Pabia 2002 (NR) Least (Before-after) Fair (4 limitations; Limited for self-report)	Location: Reading, PA & Columbus, OH USA; Components: AHRF + Screening + Referral + HE (group) Comparison: Before-after	Employees of Lucent Technologies - 2 sites. 1,099 in the initial screenings 596 classified as HR 167 (28.0%) of the HR participants completed the 6 month FU	Percent HR (systolic blood pressure <140mm Hg) Percent HR (diastolic blood pressure <90mm Hg)	28.9% 24.7%	19.9% 16.3%	-9.0 pct pts (-31.1%) (CI= -18.2, +0.2) p<.01 -8.4 pct pts (-34.0%) (CI= -17.0, +0.2) p<0.05	6 m
Holt 1995 Spilman 1986 Bellingham 1987 Sloan 1988 (1983-1988) Least (Before-After) Fair (4 limitations)	Location: USA Components: Components: AHRF + HE + ROPC + EA PA & N Comparison: Before-After	Employees of AT&T at seven worksites 2047 baseline 629 follow-up	Mean systolic blood pressure (mm Hg) Mean diastolic blood pressure (mm Hg)	121.3 76.6	122.0 79.3	+0.7 mm Hg (+0.6%) +2.7 mm Hg (+3.5%) p<0.001	5 y
Heirich 1993 Erfurt 1991 Gregg 1990 (1985-1988) Least Suitable for AHRF (Before-After study arm selected from group randomized trial) Fair (4 limitations)	Location: Detroit, MI; USA (Ford Motor Company) Components: Site A (Comparison) = AHRF + HE+ EA Med Site B = AHRF + HE (mild) + EA Med + EA PA Site C = AHRF + HE (intensive) + EA Med Site D = AHRF + HE (intensive) + EA Med + EA PA (fitness program) + Competitions + Peer Support	Automotive plant employees 4 plants Site BL F/U A-Comp 1209 102 B 1836 68 C 1713 88 D 1571 71	Change in mean blood pressure for those hypertensive at baseline: A (Comparison) —SBP —DBP B—SBP B—DBP C—SBP C—DBP D—SBP	NR NR NR NR NR NR	NR NR NR NR	-3.2 mm Hg p<0.05 -2.3 mm Hg p<0.05 +3.5 mm Hg -3.8 mm Hg p<0.01 -6.3 mm Hg p<0.001 -4.8 mm Hg p<0.001 -8.2 mm Hg p<0.001	3 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
	Comparison: Four before- after study arms		D—DBP Percent of participants with BP above 140/90: Site A Site B Site C Site D	NR 73.0% 68.0% 75.0% 75.0%	NR 74.0% 71.0% 57.0% 53.0%	-6.9 mm Hg p<0.001	
Nilsson 2001 (NR) Greatest (Individual Randomized trial) Fair (4 limitations)	Location: Sweden; Helsingborg (southern Sweden) Components: AHRF + HE (group) + Counseling Comparison: AHRF	Employees of the Helsingborg city council. 4 branches of local public sector 568 employees 454 (80%) completed the questionnaire 128 had risk score sum of ≥9 65 intervention group 63 comparison group 43 (66%) intervention group F/U 46 (73%) comparison group F/U	Mean (sd) diastolic blood pressure (mm Hg) Intervention Comparison Mean (sd) systolic blood pressure (mm Hg) Intervention Comparison	 78.7 (10) 75.9 (9.3) 132.2(18.7) 132.9(17.1)	 73 (11.3) 75.5 (9.8) 128.5(21.6) 131.7(18.6)	-5.3 mm Hg (-6.8%) -2.5 mm Hg (-1.9%)	18 m
Ostwald 1989 Least (Before-after) Fair (3, 4 for self report limitations)	Location: Upper Midwest USA Components: Mild = AHRF + Group HE + EA N Moderate = AHRF (detailed feedback) + Group HE + EA N + EA PA Intensive = AHRF + (individualized feedback) + + Ind. HE + EA N + EA PA (individualized exercise prescription, physiologist, and aerobic exercises)	Employees of a small privately owned printing company 292 employees in the intervention company 261 (89%) intervention group responded at BL 167 (57%) volunteered to participate 90 (31%) randomized (30 - in each intervention group)	Mean (sd) systolic blood pressure (mm Hg) Moderate Intensive Mean (sd) diastolic blood pressure (mm Hg) Moderate Intensive	 116.4(12.0) 112.5(12.7) 70.8 (10.9) 69.6 (14.2)	 114.8(10.7) 113.1(10.5) 76.9 (9.4) 76.1 (8.3)	-1.6mm Hg (-1.4%) p=0.364 +0.6 mm Hg (+0.5%) p=0.828 +6.1 mm Hg (+8.6%) p=0.053 +6.5 mm Hg (+9.3%) p=0.078	13 m

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
	Comparison: Before-after						
Ozminkowski 2000 Ozminkowski 1999 (1994-1997) Least (Before-after) for all participants Moderate (Retrospective cohort) for HR subset Fair (3 limitations)	Location: North America Components: All Participants: AHRF+ 1800 line + HRA completion incentive for low risk/high risk HR Subset: ACCENT Program - repeat risk-specific AHRF every three months (3x) + one outbound phone call. Late addition telephone counseling & HE. Comparison: Before-after for participants vs. non- participants	All active Citibank employees Varies from 1307-9234	Self-reported percent with high blood pressure (values exceeded 100 mm Hg)	1.2%	1.15%	-0.2 pct pts (-15.3%) (CI= -1.0, +0.6) p≤.05	Mean 2 y
Pilon 1990 (1986-1988) Least (Before-After) Fair (3 limitations)	Location: South Central USA Components: AHRF + HE Comparison: Before-After	Employees of a large south central hospital 387 participants	Mean (sd) diastolic blood pressure (mm Hg)	77.5 (11.2)	75.7 (9.7)	-1.7 mm Hg (-2.2%) p=0.0004	2 y
Poole 2001 (1990-1994) Moderate (Prospective cohort) Fair (4 limitations)	Location: Salt Lake County, UT; USA Components: AHRF + Incentives + Serial clinical measurements Comparison: Before-after (Cohort follow-up)	Employees of Salt Lake County who participated in the Healthy Lifestyle Incentive Program (HLIP) for 4 consecutive years 2540 eligible 845 signed up 714 (28%) began 304 at analysis.	Percent HR (systolic blood pressure ≥140mm Hg) Percent HR (diastolic blood pressure ≥140mm Hg)	11.8%	9.5%	-2.3 pct pts (-19.5) (CI= -7.2, +2.6)	4 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Puska 1988 (1984-1985) Greatest (Group non- randomized Trial) Fair (4 limitations)	Location: Finland; North Karelia Components: AHRF + HE (mass media;) Comparison: AHRF + (HE- exposure to mass media series)	Selected worksites in region Inter: 8 worksites Comp: 8 worksites Recruited employees in study worksites Numbers Grp Elgbl bsln 1yr % I 425 391 351 89 C 290 258 225 87	Mean Systolic blood pressure (mmHg): Intervention Comparison	136 139	132 135	0 mm Hg (0%)	2 y
			Mean Diastolic blood pressure: Intervention Comparison	81.4 81.8	81.2 82.2	-0.6 mm Hg (-0.7%)	
Shi 1992 Shi 1993 (1988-1990) Greatest (Quasi experimental with non- equivalent comparison groups) Fair (2 limitations)	Location: Northern California; USA Level 4 Components: AHRF + HE (with social support) + EH PA + Smoking policies + Incentives Level 3 Components: AHRF + HE (social support) Comparison: AHRF +	Employees of PG & E divisions Intervention Group Level 4: 427 baseline 278 follow-up Intervention Group Level 3: 645 baseline 403 follow-up Comparison Group Level 1: 1030 baseline 785 follow-up	Percent high blood pressure: Level 4	278(27%)	44(16%)	-28 <.05	2 y
			Level 3	168(26%)	85(21%)	-17 <.05	
			Level 1-Comparison	94(22%)	181(23%)	-14 <.05	
Shibley 1988 Blair 1986 (1983-1985) Greatest (Group non- randomized trial) Good (1 limitation)	Location: NJ and PA ; USA Components: AHRF + HE (group, ind., self-help kits, & phone) + EA + ROPC + Incentives + Env. Change. Comparison: AHRF	Employees of study companies who provided baseline and year 2 data 1399 Intervention 748 Comparison	Mean diastolic blood pressure (mm Hg)	NR	NR	-1.1 mm Hg	2 y
			Mean systolic blood pressure (mm Hg)	NR	NR	-4.6 mm Hg	

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Stevens 1996 (1991-1993) Least (Before-After) Fair (3 limitations)	Location: Kansas; USA Components: AHRF + HE + Incentives + EA PA Comparison: Before-After	Employees of Puritan-Bennett Corporation (3 locations) 600 552 (92%) F/U 179 Corporate location 337 Manufacturer location 36 Gas manufacturer location	Blood pressure	NR	NR	NS	1 y
Walton 1999 (1996-1997) Least (Before-After) Fair (4 limitations)	Location: South Carolina; USA Components: AHRF + HE + EH Med Comparison: Before-After	Employees of the South Carolina Department of Transportation worksites (SCDOT) 5,118 total employees 3,141 (61%) BL screen 1,549 (49%) BL & F/U screen	Percent with moderate or high risk (SBP≥140 mm Hg or DBP≥90 mm Hg)	47.0%	43.0%	-4.0 pct pts (-8.5%) (CI= -7.5, -0.5)	1 y
WHO 1986 WHO 1983 WHO 1982 WHO 1980 WHO 1974 (NR) Greatest (Group randomized trial) Fair (4 limitations)	Location: Europe; Belgium, Italy, Poland, United Kingdom Components: AHRF + HE Comparison: Usual Care	Employees at the participating 80 worksites 30489 employees in the intervention group 26971 employees in the comparison group	Estimated change in systolic blood pressure (calculated from reported net percent change) All	138	NR	-2.7 mm Hg (-2.0%)	6 y
Williams 2004 NR Least Suitable (Before- after) Fair (4 limitations)	Location: USA; GA Components: AHRF + HE Comparison: Before-After	Employees from urban and rural worksites 294 employees	Mean systolic blood pressure (mm Hg) Mean diastolic blood pressure (mm Hg)	137.5 80.5	134.5 74.5	-3.0 mm Hg (-2.2%) -6.0 mm Hg (-7.5%)	1 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Wood 1989 1985-1986 Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE with incentives Comparison: Before-After	Employees of General Mills 688 employees participated	Percent with systolic blood pressure ≥ 140 mm Hg Percent with diastolic blood pressure ≥ 90 mm Hg	14.0% 15.0%	10.0% 10.0%	-4.0 pct pts (-28.6%) -5.0 pct pts (-33.3%) (CI= -9.6, -0.4)	1 y

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Aldana 2002 (2000-2001) Least (Before-After) Fair (3 limitations)	Location: Rockford, IL; USA Components: AHRF + HE Comparison: Before-After	Employees from six worksites 453 eligible 442 completed baseline and follow-up	Mean BMI	32.0	NR	-1.4 (-4.4%)	8 w
			Mean body weight (lbs)	201.0 lbs	NR	-8.9 lbs	
Aldana 1993c, 1994 (1988-1990) Least (Before-After) Fair (3 limitations)	Location: Southwestern; USA Components: AHRF + HE Comparison: Before-After	Employees of several large companies and organizations 4509 employees completed the baseline screening 986 employees completed the follow-up screening 289 HR participants	Mean percent body fat (HR)	26.7 %	24.5%	-2.2 pct pts (-8.2%)	6 m
Anderson 1999 Greatest (Group randomized controlled trial) Fair (3 limitations)	Location: Denver, CO; USA Components: I1: AHRF + HE (group) I2: AHRF + HE (self-help) Comparison: Usual care	Employees of eight small worksites. 234 participants at baseline 118 usual care group 116 intervention group Intervention-1—n=35 Intervention-2—n=26 Comparison—n=61	Mean BMI Intervention-1 Intervention-2 Comparison	25.4 25.3 25.6	25.3 24.5 25.7	-0.2 (-0.8%) -0.9 (-3.5%)	1 y
			Mean body weight (lbs) Intervention-1 Intervention-2 Comparison	156.6 lbs 169.8 lbs 163.4 lbs	160.4 lbs 164.6 lbs 163.6 lbs	+3.6 lbs (+2.3%) -5.4 lbs (-3.2%)	
Anderson 1994 (NR) Least (Before-After) Fair (4 limitations)	Location: USA; Midwest Components: AHRF + HE Comparison: Before-After	Employees of a manufacturing corporation 70 eligible 44 completed baseline and follow-up	Mean (sd) body weight (lbs)	183.4 lbs (30.7)	182.1 lbs (31.2)	-1.3 lbs (-0.7%), (CI=-10.4, 7.8)	3.5 m
Baier 1992 (1988) Moderate (Time Series) Fair (4 limitations)	Location: Chicago, IL; USA Components: AHRF + HE Comparison: Time Series	Employees of Health Service of Rush-Presbyterian St. Lukes Medical Center 2255 health risk assessments 2251 successful measurements for	Mean body weight (lbs)	150.9 lbs	152.38 lbs	+1.5 lbs (+1.0%), (CI=1.0, 2.0)	6 m

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
		blood pressure 234 completed baseline & follow-up					
Bertera 1993 (1984-1985; 1986-1988) Least (Before-after) Fair (4 limitations)	Location: USA Components: AHRF + HE (group) + Environmental Changes + EA PA + Incentives (for behavior change) Comparison: Before-after	Employees of a large manufacturing company with more than 100 locations 7,178 intervention group	Mean percent overweight: Employees >20% over ideal wt (n=2163) Employees between 0% and 20% over ideal wt (n=5015)	32.4% 9.3%	32.4% 10.4%	-0.02 pct pts (- 0.1%), (CI=-8.0, +9.0) +1.1 pct pts (+11.2%), (-1.0, +25.0)	2 y
Blair 1986 Shibley 1988 (1983-1985) Greatest (Group non- randomized trial) Good (1 limitation)	Location: USA; Companies in NJ and PA Components: AHRF + HE (group, ind., self-help kits, & phone) + EA + ROPC + Incentives + Env. Change. Comparison: AHRF	Employees of study companies who provided baseline and year 2 data Inter: 1399 Comp: 748	Changes in body weight (lbs.) Changes in Percent body fat	NA NA	NR NR	+1.4 lbs -2.16 pct pts	2 y
Brill 1991 1982-1983 (10 weeks intervention period) Least (Before-After) Fair (3 limitations)	Location: Dallas, TX USA Components: AHRF + HE + EAPA No Comparison	Study population: 11,830 total number of employees at the Dallas, TX Independent School District (DISD) Participants: 3,873 (33%) enrolled participants Total: DISD Employees	Changes in body weight (lbs.)	NA	NR	-0.9 lbs	10 w
Edye 1989 Frommer 1990 (1977-1985) Greatest (Individual randomized trial) Fair (4 limitations)	Location: Sydney, Australia Components: AHRF + HE Comparison: AHRF	Participating government employees from two selected government organizations 4607 volunteers 2489 eligible 1937 (78%) at follow-up	Changes in body weight (lbs) Intervention 861 Comparison 1076	NA	-2.2 lbs -2.8 lbs	+0.6 lbs	3 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Erfurt 1991 Holtyn 1991 1 y Least (Before-After) Fair (4 limitations)	Location: USA; Detroit, Michigan Components: AHRF + HE	Employees of an aircraft repair and maintenance service company Sample size	Percent Body Fat <10 10-15 16-20 21-25 26 or >	5.0% 13.0 29.0 29.0 24.0	7.0% 22.0 30.0 28.0 18.0	Body Fat Percent>21: -12.0%, (-22.6%), (CI=-45.0, 8.8)	1 y
Fitzgerald 1991 NR Greatest (Individual Randomized Trial) Fair (4 limitations)	Location: Baltimore, MD; USA Components: AHRF + Screening + ROPC + Client reminder + HE Comparison: AHRF	Employees in 5 worksites for Blue Cross Blue Shield Maryland 2000 eligible employees 836 participants 262 followed up	Weight reduction of 5lb or more Inter 74 Comp 82		34.0% 21.0%	+13.0 p=0.17	1-2 m
Goetzel 2002 (1995-1999) Moderate (Retrospective cohort) Fair (4 limitations)	Location: USA Components: AHRF + HE Comparison: Before-After (participants vs. non- participants)	Employees of Johnson & Johnson 4586 study population 2301 participants in Pathways to Change (PTC) program 2285 non-PTC participants	Percent with BMI>30	75.7%	77.8%	+2.77 pct pts (CI=+0.48, +5.12)	1-5 y Mean= 32.3 m
Goetzel 1996 Knight 1994 1989-on (baseline sample enrolled 1989-1992) Greatest (Prospective Cohort) Fair (3/4 limitations)	Location: Durham, NC; USA (Duke University) Components: AHRF + HE + ROPC + other NO Comparison	University employees enrolling in health promotion program (voluntary) Eligible=15,500 est. 4424 employees completed baseline profile Randomly selected f/u subset Selected =1868 Responded=805 (45.5%)	Mean weight (lbs)::	162 lbs	166 lbs	+4 lbs (2.5%)	Range: 1 to 5 y Mean: 3.3 y
Goetzel 1994 Sepulveda 1994 (1985-1991) Greatest (Other design with	Location: USA; Sommers, NY Components: AHRF + HE +	Employees of IBM 84,650 Intervention group 9,162 Comparison group	Mean change in BMI: Participants Non-participants	NA	-0.2 0.1	Adjusted Difference: -0.5 (CI -0.1,-0.9)	4.1 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
concurrent comparison group) Fair (4 limitations)	ROPC Comparison: AHRF (at BL only)	245 participants 841 non-participants					
Gomel 1993 Gomel 1997 Oldenburg 1995 (NR) Greatest (Group randomized trial) Fair (4 limitations)	Location: Sydney, Australia Components: I1: AHRF + HE; I2: AHRF + HE with incentives Comparison: AHRF	Employees of ambulance services 431 employees recruited (I1)=102 employees at follow-up (I2)=77 employees at follow-up (C)=115 employees at follow-up	Mean BMI Intervention-1 Intervention-2 Comparison Mean percent body fat Intervention-1 Intervention-2 Comparison	 25.3 25.4 24.9 22.6% 21.8% 22.1%	 25.2 25.5 25.3 22.2% 21.6% 22.0%	 -0.6 (-2.2%) -0.4 (-1.6%) -0.65 pct pts (-2.9%) -0.75 pct pts (-3.4%)	 1 y 18 m
Hartman 1993 Hartman 1995 Hartman 1991 McCarthy 1992 (NR) Greatest (Other design with concurrent comparison group) Fair (4 limitations)	Location: US: Phoenix, AZ Components: AHRF + HE Comparison: AHRF	Employees of the city of Phoenix, AZ 1193 employees at baseline 170 employees in the intervention group 116 employees in the comparison group	Mean BMI Intervention Comparison	 26.6 27.0	 26.4 27.1	 -0.3 (-1.1%), p=.055	 8 w
Heirich 1993 Erfurt 1991 Gregg 1990 (1985-1988) Least Suitable for AHRF (Before-After study arms selected from group randomized trial) Fair (4 limitations)	Location: USA, Detroit region. Ford Motor Company Components: Site A = AHRF + HE+ EA Site B = AHRF + HE (mild) + EA Med + EA PA Site C = AHRF + HE (intensive) + EA Med Site D = AHRF + HE (intensive) + EA Med + EA PA (fitness program) +	Automotive plant employees 4 plants Site BL F/U A 1209 493 B 1836 503 C 1713 481 D 1571 403	Mean Change in Weight of those 20 Percent+ overweight at baseline: Site A (n=194) Site B (n=173) Site C (n=150) Site D (n=173)	NR	NR	+0.6 lbs, p<0.01 +3.1 lbs -1.2 lbs -4.7 lbs, p<0.01	3 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
	Competitions + Peer Support Comparison: Four before- after study arms						
Holt 1995 Spilman 1986 Bellingham 1987 Sloan 1988 (1983-1988) Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE + ROPC + EA PA & N Comparison: Before-After	Employees of AT&T at seven worksites 2047 baseline 629 follow-up	Mean Sheldon Index ([height/weight] x .333)	12.44	12.36	-0.08, (-0.6%), p<0.001	5 y
Musich 2003 Schultz 2002 1996-2001 Least (Before-After) Fair (4 limitations)	Location: Michigan USA Components: AHRF + HE (ind. & group) + ROPC (vouchers) Comparison: Before-After	2141 active employees 2,141 employees participated in all three HRAs in years 1, 2, and 5	Percent at risk (≥30% over desirable weight)	36.2%	43.6%	+7.4 pct pts (+20.44%), (CI=+11.8, +29.7), p<.001	5 y
Nilsson 2001 (NR) Greatest (Individual Randomized trial) Fair (4 limitations)	Location: Sweden; Helsingborg (southern Sweden) Components: AHRF + HE (group) + Counseling Comparison: AHRF	Employees of the Helsingborg city council. 4 branches of local public sector 568 employees 454 (80%) completed the questionnaire 128 had risk score sum of ≥9 65 intervention group 63 comparison group 43 (66%) intervention group completed F/U 46 (73%) comparison group completed	Mean (sd) BMI Intervention Comparison	28.8 (5.9) 26.7 (5.2)	28.3 (5.7) 26.7 (4.6)	-0.5 (-1.7%)	18 m

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Ostwald 1989 Least (Before-after) Fair (3, 4 for self report limitations)	Location: Upper Midwest; USA Components: Mild = AHRF + Group HE + EA N Moderate = AHRF (detailed feedback) + HE (group) + EA PA & N Intensive = AHRF + (individualized feedback) + + Ind. HE + EA N + EA PA (individualized exercise prescription, physiologist, and aerobic exercises) Comparison: Before-after	Employees of a small privately owned printing company 292 employees in the intervention company 261 (89%) intervention group responded at BL 167 (57%) volunteered to participate 90 (31%) randomized (30 - in each intervention group)	Mean (sd) weight (lbs): Intensive Moderate Change in percent body fat: Intensive Moderate	 167.3 lbs (31.4) 160.3 lbs (30.9) 22.7% (10.7) 22.9% (7.8)	 166.9 lbs (30.8) 152.8 lbs (27.2) 18.2% (7.6) 17.5% (7.7)	 -0.44 lbs, (-0.3%) -7.5 lbs, (-4.7%), p<.001 -5.4 pct pts, (- 23.6%), p <.05 -4.5 pct pts (- 19.8%), p <.001	15 m
Ozminkowski 2000, 1999 1994-1997 Overall Least (Before-After) Fair (4 limitations)	Location; North America Components: AHRF + [Incentive (\$10)] + HE (with additional interventions for participants at high risk) Comparison: Before-after for participants vs. non-participants	All active Citibank employees eligible: 47,838 in 1994 25,931 (54.3%) participants Subset for analysis were participants with at least 2 HRAs at least 180 days apart 9234 (35.6% of participants)	BMI Percent High Risk (>27)	31.8%	34.0%	2.2 pct pts (+6.92%) (CI=-4.5, 19.7)	least 2 HRAs at least 180 days apart
Pilon 1990 (1986-1988) Least (Before-After) Fair (3 limitations)	Location: South Central USA Components: AHRF + HE Comparison: Before-After	Employees of a large south central hospital 387 participants	Mean (sd) body weight (lbs)	161.6 (38.1)	161.1 (38.1)	-0.50 lbs (-.31%), p=0.5	2 y
Poole 2001 1990-1994 Moderate (Prospective)	Location: Salt Lake County, UT; USA	Recruited full-time employees of Salt Lake County who participated in the HLIP for 4 consecutive years	Percent of obese participants (men ≥25% body fat,			-0.78 pct pts	4 y

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Author & year (study period) Design suitability (design) Quality of execution (# of Limitations) Evaluation setting	Intervention and comparison elements	Study population description Sample size	BODY COMPOSITION				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Cohort) Fair (4 limitations)	Components: AHRF + Incentives No Comparison	2540 eligible 845 signed up 714 (28%) began 304 (11.9% of eligible) at analysis.	women ≥32% body fat)				
Shi 1992 Shi 1993 (1988-1990) Greatest (Quasi experimental with non- equivalent comparison groups) Fair (2 limitations)	Location: Northern California; USA Level 4 Components: AHRF + HE (with social support) + EH PA + Smoking policies + Incentives Level 3 Components: AHRF + HE (social support) Comparison: AHRF +	Employees of PG & E divisions Intervention Group Level 4: 427 baseline 278 follow-up Intervention Group Level 3: 645 baseline 403 follow-up Comparison Group Level 1: 1030 baseline 785 follow-up	Percent more than 20% over ideal weight: Level 4 Level 3 Level 1-Comparison	33% 34% 38%	29% 34% 38%	-4 pct pts (-12.2%) (CI=-28.4, 7.8) 0 pct pts (0%) (CI=-15.0, 17.7)	2 y
WHO 1986, 1983, 1982, 1980, 1974 6 y study period Greatest (group randomized) Fair (4 limitations)	Location: Europe (Belgium, Italy, Poland, United Kingdom) Components: AHRF + HE + referral (HTN) Comparison: Usual care	Recruited factories and eligible workers within recruited worksites 80 factories (arranged in matched pairs with assignment to condition) 60,881 men age 40-59 recruited, evaluated across study sites Initial participation rate: 87% of those invited Worksites # Worksites: 40 Employees Baseline Analysis I: NR 30,489	Estimated change in weight (calculated from net percentage change from entry) All	167.2 lbs	NR	-0.66 lbs (-0.4%)	6 y
Wood 1989 1985-1986 Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE with incentives Comparison: Before-After	Employees of General Mills 688 employees participated	Percent of participants self- reporting being over 10% overweight	45.0%	43.0%	-2.0%, (-4.4%), (CI=- 15.3, 7.9)	1 y

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Author & year (study period) Design suitability (design) Quality of execution (# of Limitations) Evaluation setting	Intervention and comparison elements	Study population description Sample size	CHOLESTEROL				
			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Aldana 2002 (2000-2001) Least (Before-After) Fair (3 limitations)	Location: Rockford, IL; USA Components: AHRF + HE Comparison: Before-After	Employees of 6 worksites 453 eligible 442 completed baseline & follow-up	Mean total cholesterol (mg/dL)	205.3 mg/dL	NR	-26.3 mg/dl (-12.8%)	8 w
			Mean HDL (mg/dL)	51.1 mg/dL	NR	-6.5 mg/dL (-12.7%)	
			Mean LDL (mg/dL)	123.5 mg/dL	NR	-17.8 mg/dl, (-14.4%) p <.001	
Aldana 1993c, 1994 (1989-1991) Moderate (Time Series) Fair (2 limitations)	Location: Southwestern; USA Components: AHRF + HE with Incentives Comparison: Time Series	Employees of a large manufacturing company 943 employee baseline screening 113 employee baseline & follow-up screenings	Mean total cholesterol (mg/dl), estimated mean	200.1 mg/dL	184.2 mg/dL	-15.91 mg/dL (-8.0%)	1 y
Anderson 1999 Greatest (Group randomized controlled trial) Fair (3 limitations)	Location: Denver, CO; USA Components: I1: AHRF + HE (group) I2: AHRF + HE (self-help) Comparison: Usual care	Employees of eight small worksites. 234 participants at baseline Intervention 1 (61/35) Intervention 2 (35/26) Comparison (118/61)	Mean total cholesterol of participants with serum cholesterol levels ≥ 200 mg/dl Intervention 1 Intervention 2 Comparison	 230.2 225.8 235.3	 212.3 216.7 213.1	 +4.3 mg/dL (+1.8%) +13.1 mg/dL (+6.0%)	1 y
Baier 1992 (1988) Moderate (Time Series) Fair (4 limitations)	Location: Chicago, IL; USA Components: AHRF + HE Comparison: Time Series	Employees of Health Service of Rush-Presbyterian St. Lukes Medical Center 2255 completed a health risk assessment 2251 successful measurements for blood pressure 234 completed baseline & follow-up	Mean (sd) changes in total cholesterol (mg/dl) All Desirable Borderline High	NR	NR	-9.82 mg/dl (-1.82) (CI=-13.4, -6.3) +2.85 (2.35) mg/dl -16.22 (2.84) mg/dl -26.24 (3.84) mg/dl	6 m
Bertera 1993	Location: USA	Employees of a large manufacturing	Overall mean total				

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
(1984-1985; 1986-1988) Least (Before-after) Fair (4 limitations)	Components: AHRF + HE (group) + Environmental Changes + EA PA + Incentives (for behavior change) Comparison: Before-after	company with more than 100 locations 7,178 intervention group	blood cholesterol (mg/dL)	201.7 mg/dL	204.0 mg/dL	+2.4 mg/dL, (+1.2%); (CI=+2.3, +2.4)	2 y
Blair 1986 Shipley 1988 (1983-1985) Greatest (Group non- randomized trial) Good (1 limitation)	Location: NJ and PA ; USA Components: AHRF + HE (group, ind., self-help kits, & phone) + EA + ROPC + Incentives + Env. Change. Comparison: AHRF	Employees of study companies who provided baseline and year 2 data 1399 intervention 748 comparison	Changes in total cholesterol (mg/dl) Changes in HDL cholesterol (mg/dl)			-13.0 mg/dL -2.35 mg/dL	2 y
Edye 1989 Frommer 1990 (1977-1985) Greatest (Individual randomized trial) Fair (4 limitations)	Location: Sydney, Australia Components: AHRF + HE Comparison: AHRF	Participating government employees from two selected government organizations 4607 volunteers 2489 eligible 1937 (78%) at follow-up	Changes in total cholesterol (mg/dl) Intervention 1076 Comparison 748		12.8 mg/dL 13.5 mg/dL	-0.8 mg/dl	3 y
Goetzel 2002 (1995-1999) Moderate (Retrospective cohort) Fair (4 limitations)	Location: USA Components: AHRF + HE Comparison: Before-After (participants vs. non- participants)	Employees of Johnson & Johnson 4586 study population 2301 participants in Pathways to Change (PTC) program 2285 non-PTC participants	Percent total cholesterol ≥ 200 mg/dl	66.2%	43.2%	-23.0 pct pts, (- 34.7%); (CI=-25.0, - 21.0); p<.001	32 m
Goetzel 1996 Knight 1994 1989-on (baseline sample enrolled 1989-1992) Greatest (Prospective Cohort) Fair (3/4 limitations)	Location: Durham, NC; USA (Duke University) Components: AHRF + HE + ROPC + other NO Comparison	University employees enrolling in health promotion program (voluntary) Eligible=15,500 est. 4424 employees completed baseline profile	Change in the percent with "Need to Improve" classification (Total cholesterol ≥200 mg/dL)	3.0%	32.0%	-7.0 pct pts, (-18.0%); (CI=-11.7, -2.3),	Range: 1 to 5 y Mean: 3.3 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
	Comparison: Pre-Post for high risk group only	FU					
Hartman 1995 Hartman 1993 Hartman 1991 McCarthy 1992 (NR) Greatest (Other design with concurrent comparison group) Fair (4 limitations)	Location: Phoenix, AZ; USA Components: AHRF + HE Comparison: AHRF	Employees of the city of Phoenix, AZ 1193 employees at baseline 170 employees in the intervention group 116 employees in the comparison group	Mean total cholesterol (mg/dL) Intervention Comparison	225.8 227.8	217.7 2293	-8.5 mg/dl (adjusted) (CI= -14.7, -2.3)	8 w
			Mean HDL cholesterol (mg/dL) Intervention Comparison	51.1 48.8	49.9 44.9	+2.7 mg/dL (+6.2%)	
			Mean LDL (mg/dL) Intervention Comparison	150.5 150.5	138.8 150.2	-11.3 mg/dL, p<.004	
Holt 1995 Spilman 1986 Bellingham 1987 Sloan 1988 (1983-1988) Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE + ROPC + EA PA & N Comparison: Before-After	Employees of AT&T at seven worksites 2047 baseline 629 follow-up	Mean total cholesterol (mg/dL)	206.1 mg/dL	214.7 mg/dL	+8.6 mg/dL (+4.2%) p<.001	5 y
			Mean HDL cholesterol (mg/dL)	50.9	54.2	+3.3 mg/dL (+6.1%); p<.001	
Musich 2003 Schultz 2002 1996-2001 Least (Before-After) Fair (4 limitations)	Location: Michigan; USA Components: AHRF + HE (ind. & group) + ROPC (vouchers) Comparison: Before-After	2141 active employees 2,141 employees participated in all three HRAs in years 1, 2, and 5	Percent at risk (cholesterol >239 mg/dL)	16.5%	18.4%	+1.9 pct pts (+11.5%); (CI=-0.4, +4.2); p=.04	5 y
Nilsson 2001 (NR) Greatest (Individual Randomized trial) Fair (4 limitations)	Location: Sweden; Helsingborg (southern Sweden) Components: AHRF + HE	Employees of the Helsingborg city council. 4 branches of local public sector 568 employees	Mean total cholesterol Intervention Comparison	226.2 222.3	222.3 222.3	-3.9mg/dL (-1.7%)	18m

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
	(group) + Counseling Comparison: AHRF	454 (80%) questionnaires 128 had risk score sum of ≥9 65 intervention group 63 comparison group 43 (66%) intervention group F/U 46 (73%) comparison group FU	Mean HDL cholesterol Intervention Comparison	47.2 mg/dL 48.4 mg/dL	49.5 mg/dL 49.9 mg/dL	+0.2 mg/dL (+1.7%)	
Ostwald 1989 Least (Before-after) Fair (3, 4 for self report limitations)	Location: Upper Midwest; USA Components: Mild = AHRF + Group HE + EA N Moderate = AHRF (detailed feedback) + HE (group) + EA PA & N Intensive = AHRF + (individualized feedback) + + Ind. HE + EA N + EA PA (individualized exercise prescription, physiologist, and aerobic exercises) Comparison: Before-after	Employees of a small privately owned printing company 292 employees in the intervention company 261 (89%) intervention group responded at BL 167 (57%) volunteered to participate 90 (31%) randomized (30 - in each intervention group)	Mean (sd) total cholesterol: Mild Moderate Intensive Mean (sd) HDL cholesterol (mg/dL): Mild Moderate Intensive	210.5(49.5) 199.5(38.9) 197.0(41.5) 42.8 (12.2) 47.1 (16.0) 47.2 (12.2)	198.9(41.0) 192.2(30.0) 182.0(37.5) 44.9 (12.4) 48.8 (14.8) 47.5 (9.1)	-11.6 mg/dL (-5.5%); (CI=-29.3, 6.1) -7.3 mg/dL (-3.7%); (CI=-24.3, +9.7) -15.0 mg/dL (-7.6%); (CI=-32.4, +2.4) +2.1 mg/dL (+4.9%); p=.27 +1.7 mg/dL (+3.6%); p=.28 +0.3 mg/dL, (+0.6%); p=.85	15 m
Ozminkowski 2000, 1999 1994-1997 Least (Before-After) Fair (4 limitations)	Location; North America Components: AHRF + [Incentive (\$10)] + HE (w additional interventions for participants at high risk) Comparison: Before-after for participants vs. non-participants	All active Citibank employees eligible: 47,838 in 1994 25,931 (54.3%) participants Subset for analysis were participants with at least 2 HRAs at least 180 days apart 9234 (35.6% of participants)	Percent High Risk (>239 mg/dL)	9.4%	17.6%	+8.2pct pts (87.2%); (CI= +5.5, +10.9); p<.05	2 HRAs at least 180 days apart
Pelletier 2004 Boles 2004 1st Survey: Feb-Sept 2001	Location: USA Components: AHRF + HE +	Employees of large national employer. Participants were members of corporate-sponsored	Percent told by physician they have high cholesterol or	49.6%	18.0%	-31.6 pct pts, (- 63.7%); (CI= -37.1, -	1 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
2nd Survey: Feb-Mar 2002 Least (Before-After) Fair (3 limitations)	Incentives + EAPA No Comparison	fitness centers in 7 locations throughout USA plus all of the employees in one field site. 5042 eligible employees 2264 respondents to 1st survey 500 (22% of 2264 & 10% of eligible) pre & post respondents	total cholesterol ≥240 mg/dL			26.1); p<.001	
Pilon 1990 (1986-1988) Least (Before-After) Fair (3 limitations)	Location: South Central USA Components: AHRF + HE Comparison: Before-After	Employees of a large south central hospital 387 participants	Mean (sd) total cholesterol (mg/dl)	221.0 (51.7)	216.2 (47.9)	-4.79 mg/dl (-2.2%); p=0.004	2 y
Poole 2001 1990-1994 Moderate (Prospective Cohort) Fair (4 limitations)	Location: Salt Lake County, UT; USA Components: AHRF + Incentives No Comparison	Recruited full-time employees of Salt Lake County who participated in the HLIP for 4 consecutive years 2540 eligible 845 signed up 714 (28%) began 304 (11.9% of eligible) at analysis.	Mean Total Cholesterol Level (mg/dL):	190.9 mg/dL	199.2 mg/dL	+8.33 mg/dL (+4.4%)	4 y
Puska 1988 (1984-1985) Greatest (Group non- randomized Trial) Fair (4 limitations)	Location: Finland; North Karelia Components: AHRF + HE (mass media;) Comparison: AHRF + (HE- exposure to mass media series)	Selected worksites in region Inter: 8 worksites Comp: 8 worksites Recruited employees in study worksites Numbers <u>Grp</u> <u>Elgbl</u> <u>bsln</u> <u>1yr</u> <u>%</u> I 425 391 351 89 C 290 258 225 87	Mean Total Cholesterol level (mmol/L converted to mg/dl): Intervention	218.4	214.5	0 mg/dl (0%)	1y
			Comparison	222.3	218.4		
Shi 1992 Shi 1993 (1988-1990) Greatest (Quasi experimental with non- equivalent comparison	Location: Northern California; USA Level 4 Components: AHRF + HE (with social support) + EH PA + Smoking policies +	Employees of PG & E divisions Intervention Group Level 4: 427 baseline 278 follow-up Intervention Group Level 3:	Percent with total cholesterol > 210 mg/dl: Level 4	47.0%	24.0%	-11.0pct pts(-28.5%) (CI =-17.0, -5.0) -6.0 pct pts (-17.3%)	2 y
			Level 3	44.0%	26.0%		

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
groups) Fair (2 limitations)	Incentives Level 3 Components: AHRF + HE (social support) Comparison: AHRF +	645 baseline 403 follow-up Comparison Group Level 1: 1030 baseline 785 follow-up	Level 1	42.0%	30.0%	(CI=-11.3, -0.7)	
Strychar 1998 (NR) Least (Before-After) Fair (2 limitations)	Location: Canada Components: I1: AHRF + HE I2: AHRF + HE Comparison: Before-After	Employees of 6 hospitals 216 employees in the intervention group (I1) 213 employees in the comparison group (I2)	Overall mean blood cholesterol level (mmol/L converted to mg/dL) Intervention 1 Intervention 2 Percent screened with cholesterol >200mg/dL	198.9 187.2 51.0%	185.6 197.2 38.0%	-10.4 (-5.4%); (CI=- 18.2, -2.7) -9.7 (-4.7%); (CI=- 17.4, -1.9) -13.0 pct pts (-25.5%)	16-20 w
Walton 1999 (1996-1997) Least (Before-After) Fair (4 limitations)	Location: South Carolina; USA Components: AHRF + HE + EA Med Comparison: Before-After	Employees of the South Carolina Department of Transportation worksites (SCDOT) 5,118 total employees 3,141 (61%) BL screen 1,549 (49%) BL & F/U screen	Mean total cholesterol Percent of employees with cholesterol ≥200 mg/dl	208 mg/dL 53.0%	205 mg/dL 57.0%	-3.0 mg/dL (-1.4%) +4.0 pct pts (+7.55%); (CI= +0.5, +7.5)	1 y
WHO 1986, 1983, 1982, 1980, 1974 6y study period Greatest (group randomized) Fair (4 limitations)	Location: Europe (Belgium, Italy, Poland, United Kingdom) Components: AHRF + HE + referral (HTN) Comparison: Usual care	Recruited factories and eligible workers within recruited worksites 80 factories (arranged in matched pairs with assignment to condition) 60,881 men age 40-59 recruited, evaluated across study sites Initial participation rate: 87% of those invited Worksites # Worksites: I: 40; C: 40 Employees Baseline Analysis I: NR 30,489 C:NR 26,971	Mean total cholesterol (mg/dl) All	NR	NR	-2.6 mg/dl	6 y

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Williams 2004 NR Least Suitable (Before- after) Fair (4 limitations)	Location: State of GA ;USA Components: AHRF + HE Comparison: Before-After	Employees from urban and rural worksites 294 employees	Mean total cholesterol (mg/dl)	195.6	193.7	-1.9 mg/dl (-1.0%)	1 y
			Percent with elevated cholesterol	51.0%	44.8%	-6.2 pct pts (- 12.2%); (CI=-14.3, +1.8)	

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Author & year (study period) Design suitability (design) Quality of execution (# of Limitations) Evaluation setting	Intervention and comparison elements	Study population description Sample size	FITNESS INDICATORS				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Aldana 1993 (1989-1991) Moderate (Time Series) Fair (2 limitations)	Location: Southwestern USA Components: AHRF + HE with Incentives Comparison: Time Series	Employees of a large manufacturing company 943 employees completed the baseline screening 113 employees completed baseline and follow-up screenings	Mean submaximal fitness (ml O ₂ /kg)	28.6 ml O ₂ /kg	32.9 ml O ₂ /kg	+4.3 ml O ₂ /kg, (+15.0%); p=ns	18 m
Blair 1986 Shiple 1988 (1983-1985) Greatest (Group non- randomized trial) Good (1 limitation)	Location: NJ and PA ; USA Components: AHRF + HE (group, ind., self-help kits, & phone) + EA + ROPC + Incentives + Env. Change. Comparison: AHRF	Employees of study companies who provided baseline and year 2 data Inter: 1399 Comp: 748	VO ₂ max: mL x kg ⁻¹ x min ⁻¹ (least squares means)		38.7 36.7	+8.4% +4.7%	2 y
Brill 1991 1982-1983 (10 weeks intervention period) Least (Before-After) Fair (3 limitations)	Location: Dallas, TX; USA Components: AHRF + HE + EAPA No Comparison	11,830 total number of employees at the Dallas, TX Independent School District (DISD) 3,873 (33%) enrolled participants	Change in treadmill time(sec)		NR	+46.6 seconds	10 w
Edye 1989 Frommer 1990 (1977-1985) Greatest (Individual randomized trial) Fair (4 limitations)	Location: Sydney, Australia Components: AHRF + HE Comparison: AHRF	Participating government employees from two selected government organizations 4607 volunteers 2489 eligible 1937 (78%) at follow-up	Difference in net change in proportion who were not fit (converted to change in proportion fit:pulse ≤120 beats per min after 2 minutes stepping) Intervention Comparison			-4.0%, (CI= -1.1, - 6.9)	3 y
Gomel 1993 Gomel 1997 Oldenburg 1995	Location: Sydney, Australia Components: I1: AHRF + HE;	Employees of ambulance services 431 employees recruited	Aerobic capacity (ml.kg ⁻¹ .min ⁻¹)				18 m

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
(NR) Greatest (Group randomized trial) Fair (4 limitations)	I2: AHRF + HE with incentives Comparison: AHRF	(I1)=102 employees at follow-up (I2)=77 employees at follow-up (C)=115 employees at follow-up	max O2 consumption x 1000 x age correction/wt(kg) Intervention-1 Intervention-2 Comparison	34.0 35.4 33.8	36.5 35.4 34.4	+1.9 (+5.5%) -0.6 (-1.7%)	
Ostwald 1989 Least (Before-after) Fair (3, 4 for self report limitations)	Location: Upper Midwest USA Components: Mild = AHRF + Group HE + EA N Moderate = AHRF (detailed feedback) + HE (group) + EA PA & N Intense = AHRF + (individualized feedback) + Ind. HE + EA N + EA PA (individualized exercise prescription, physiologist, and aerobic exercises) Comparison: Before-after	Employees of a small privately owned printing company 292 employees in the intervention company 261 (89%) intervention group responded at BL 167 (57%) volunteered to participate 90 (31%) randomized (30 - in each intervention group)	Mean length of time on treadmill (min): Mild Moderate Intense Heart rate (BPM) Mild Moderate Intense	NR 12.69 (1.7) 14.24 (2.5) NR 81.0 (13.5) 85.0 (41.1)	NR 13.61 (2.7) 14.9 (1.6) NR 75.1 (11.6) 76.4 (14.3)	NR +0.92 min (7.2%) +0.66 min (4.6%) NR -8.6 BPM (-10.1%) -5.9 BPM (-7.3%)	15 m

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Donnelly 1996 Least (Before-After) Fair (3 limitations)	Location: Akron, OH; USA Components: AHRF + HE + EA PA+ Comparison: Before-After	Employees of Sterling, Inc. - a national retail jewelry store chain 10,000 total employees 338 participants- 133 middle men 35 senior managers	Mean health risk factor score for senior managers	12	2	-10.0 pt (-83.0%), NR	7 m
Edington 2002 Yen 2001 Yen 2000 (NR: 1-2 year study period) Moderate (Before-After) Fair (4 limitations)	Location: USA (nationwide) Components: AHRF + HE Comparison: Before-After	A convenience sample of those who self-selected to participate in the LifeSteps program Eligible: 1.2 million Completed 1 HRA: 254,983 Completed a second HRA in 2yr study period: 66,857 Study subset of active employees 12,984 8201 HRA by mail participants (3.7% of active employees) 4783 HRA on-site participants (13.7% of active employees at pre- selected sites)	Percent high risk	33.0%	29.0%	-4.0 pct pts (-12.1%)	1-2 y
Goetzel 2002 (1995-1999) Moderate (Retrospective cohort) Fair (4 limitations)	Location: USA Components: AHRF + HE Comparison: Before-After (participants vs. non- participants)	Employees of Johnson & Johnson 4586 study population 2301 participants in Pathways to Change (PTC) program 2285 non-PTC participants	Percent at high risk of diabetes (blood glucose \geq 115 mg/dL or gave birth to child weighing over 9lbs) PTC Non-PTC	54.8% 47.8%	55.7% 50.7%	+0.9 pct pts (+1.6%) +2.9 pct pts (+6.1%)	32 m

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Heirich 1993 Erfurt 1991 Gregg 1990 (1985-1988) Least Suitable for AHRF (Before-After study arms selected from group randomized trial) Fair (4 limitations)	Location: Detroit, MI USA, (Ford Motor Company) Components: Site A = AHRF + HE+ EA Med Site B = AHRF + HE (mild) + EA Med + EA PA Site C = AHRF + HE (intensive) + EA Med Site D = AHRF + HE (intensive) + EA Med + EA PA (fitness program) + Competitions + Peer Support Comparison: Four before- after study arms	Automotive plant employees 4 plants Site BL F/U A 1209 493 B 1836 503 C 1713 481 D 1571 403	Percent of high level CVD risk reduction/relapse prevention: Site A Site B Site C Site D	NR NR NR NR	NR NR NR NR	35% 32% 44% 45%	3 y
Holt 1995 Spilman 1986 Bellingham 1987 Sloan 1988 (1983-1988) Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE + ROPC + EA PA & N Comparison: Before-After	Employees of AT&T at seven worksites 2047 baseline 629 follow-up	Mean values of risk for: Cancer morbidity Heart attack morbidity Stroke morbidity Total mortality	.93 .79 .99 .96	.93 .59 .80 .88	.00 (0%), p<.001 -0.2 (-25%), p<.001 -0.19, (-19%), p<.001 -0.08 (-8.3%), p<.01	5 y
Maes 1998 (1990-1993) Greatest (Other design with concurrent comparison group (with repeated measures)) Fair (4 limitations)	Location: The Netherlands Components: AHRF + HE (group) + EA PA & N + Incentives Comparison: AHRF	Employees of Brabantia Manufacturing Company 3 company sites 1 Site = Experimental Group 2 Sites = Comparison Group 552 Eligible population 346 at pretest 264 at 3rd posttest Intervention (n=117) Comparison (n=120)	Mean (sd) risk of developing CVD in 8 yrs: Intervention Comparison	0.05 (0.06) 0.055 (0.06)	.062 (0.06) .061 (0.06)	+0.006 (11.8%), p=.02	3 y

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Author & year (study period) Design suitability (design) Quality of execution (# of Limitations) Evaluation setting	Intervention and comparison elements	Study population description Sample size	HEALTH RISKS				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Musich 2003 Schultz 2002 (1996-2001) Least (Before-After) Fair (4 limitations)	Location: Michigan USA Components: AHRF + HE (ind. & group) + ROPC (vouchers) Comparison: Before-After	2141 active employees 2,141 employees participated in all three HRAs in years 1, 2, and 5	Percent ≥ 3 risks	41.0%	30.8%	-10.2 pct pts (- 24.9%)	5 y
Nilsson 2001 (NR) Greatest (Individual Randomized trial) Fair (4 limitations)	Location: Sweden; Helsingborg (southern Sweden) Components: AHRF + HE (group) + Counseling Comparison: AHRF	Employees of the Helsingborg city council. 4 branches of local public sector 568 employees 454 (80%) completed the questionnaire 128 had risk score sum of ≥ 9 65 intervention group 63 comparison group 43 (66%) intervention group completed F/U 46 (73%) comparison group completed	Total Risk Score Intervention Comparison Difference	10.3 (1.5) 10.8 (2.2)	9.0 (2.2) 10.0 (2.2)	-0.5, (-5.6%)	18 m
Pelletier 2004 Boles 2004 1st Survey: Feb-Sept 2001 2nd Survey: Feb-Mar 2002 Least (Before-After) Fair (3 limitations)	Location: USA Components: AHRF + HE + Incentives + EAPA No Comparison	Employees of large national employer. Participants were members of corporate-sponsored fitness centers in 7 locations throughout USA plus all of the employees in one field site. 5042 eligible employees 2264 respondents to 1st survey 500 (22% of 2264 & 10% of eligible) pre & post respondents	Calculated change in Health Risks Percent with 3 or more risk factors	69%	53%	-16.0 pct pts (- 23.2%), ns	1 y
Pilon 1990 (1986-1988) Least (Before-After) Fair (3 limitations)	Location: South Central USA Components: AHRF + HE Comparison: Before-After	Employees of a large south central hospital 387 participants	Mean (sd) calculated CVD risk factor value	2.47 (3.1)	2.18 (2.5)	-0.29 pts (-11.7%), p<0.005	2 y

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			Results				Follow-up time
			Effect measure	Baseline value	Outcome value	Value used in summary	
Poole 2001 (1990-1994) Moderate (Prospective Cohort) Fair (4 limitations)	Location: Salt Lake County, USA Components: AHRF + Incentives No Comparison	Recruited full-time employees of Salt Lake County who participated in the HLIP for 4 consecutive years 2540 eligible 845 signed up 714 (28%) began 304 (11.9% of eligible) at analysis.	Mean (sd) risk scores over time: Total Risk Score	3.20 (1.2)	3.41 (1.2)	+0.21 pts (+6.6%)	4 y
			Percent with 3 or more risk factors	36.3%	43.9%	+7.6 pct pts (+20.9%)	
Puska 1988 (1984-1985) Greatest (Group non-randomized Trial) Fair (4 limitations)	Location: Finland; North Karelia Components: AHRF + HE (mass media;) Comparison: AHRF + (HE-exposure to mass media series)	Selected worksites in region Inter: 8 worksites Comp: 8 worksites Recruited employees in study worksites Numbers <u>Grp Elgbl bsln 1yr %</u> I 425 391 351 89 C 290 258 225 87	Risk Score				
			Intervention Comparison	3.1 3.2	2.7 3.0	0.2 (-7.1%)	
Shi 1992 Shi 1993 (1988-1990) Greatest (Quasi experimental with non-equivalent comparison groups) Fair (2 limitations)	Location: Northern California; USA Components: AHRF + HE (with social support) + EH PA + Smoking policies + Incentives Comparison: AHRF +	Employees of PG & E divisions Group (N-baseline/N-follow-up) Level 1-Comparison (1030/785) Level 4 (427/278) Level 3 (645/403)	Percent susceptible to: Heart attack				2 y
			Level 4 Difference (v L1) Level 3 Difference (v L1) Level 1	58% 62% 51%	38% 44% 45%	-14.0 pct pts (-25.8%) -12.0 pct pts (-19.6%)	
			Diabetes				
			Level 4 Difference (v L1) Level 3 Difference (v L1) Level 1	60% 53% 49%	54% 55% 56%	-13.0 pct pts (-21.3%) -5.0 pct pts (-9.2%)	

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
			Cancer Level 4 Difference (v L1)	33%	25%	-11.0 pct pts (-32.7%) -10.0 pct pts (-28.4%)	
			Level 3 Difference (v L1)	36%	29%		
			Level 1	34%	27%		
			Adj Total Risk Score Level 4 Difference (v L1)	880	680	-110pts (-14.1%), p<.05 -25 pts (-2.9%), ns	
			Level 3 Difference (v L1)	910	795		
			Level 1	895	805		
Stevens 1996 (1991-1993) Least (Before-After) Fair (3 limitations)	Location: USA; Kansas Components: AHRF + HE + Incentives + EA PA Comparison: Before-After	Employees of Puritan-Bennett Corporation (3 locations) 600 552 (92%) F/U 179 Corporate location 337 Manufacturer location 36 Gas manufacturer location	Percent at risk for: Heart attack death	40.6%	15.0%	-25.6 pct pts (-63%), p<.05	1 y
			Percent at risk for lung cancer death	3.6%	6.3%		
Walton 1999 (1996-1997) Least (Before-After) Fair (4 limitations)	Location: South Carolina; USA Components: AHRF + HE + EA Med Comparison: Before-After	Employees of the South Carolina Department of Transportation worksites (SCDOT) 5,118 total employees 3,141 (61%) BL screen 1,549 (49%) BL & F/U screen	Ratings Based on Health Risk Appraisal and Screenings (%) Overall coronary risk rating Low risk High risk Overall wellness rating Good/excellent Fair Poor	18.0 58.0 19 52	21.0 59.0 19 56	3.0 pct pts 1.0 pct pts 0.0 pct pts 4.0 pct pts	1y

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
			Lifestyle: 7 good health habits	40	36	-4.0 pct pts	
			Practice 6-7	4	5	1.0 pct pts	
			Practice 4-5	41	41	0.0 pct pts	
			Practice 0-3	55	55	0.0 pct pts	

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			Effect measure	Results			
				Baseline value	Outcome value	Value used in summary	Follow- up time
Fielding 1994 (NR) Greatest (Individual Randomized Trial) Fair (2 limitations)	Location: USA; CA, FL, GA, TX Components: AHRF + HE Comparison: Provider Referral	Employees at the participating worksites 49 employees in the intervention group 52 employees in the comparison group	New users of blood pressure medication Intervention Comparison	N/A	26.5% 9.6%	+16.9 pct pts	1 y
Goetzel 2002 (1995-1999) Moderate (Retrospective cohort) Fair (4 limitations)	Location: USA Components: AHRF + HE Comparison: Before-After (participants vs. non- participants)	Employees of Johnson & Johnson 4586 study population 2301 participants in Pathways to Change (PTC) program 2285 non-PTC participants	Number of ED visits Outpatient/Doctor's Office visits Number of Mental Health visits Number of Inpatient days	NR	NR	OR=0.503; Se= .037 p<.05 OR=0.796; Se= .027 p<.05 OR=0.973; Se= .058 NS OR=0.568; Se= .068 p<.05	4 y
Goetzel 98 (1990-1992) Moderate (Retrospective cohort) Fair (4 limitations)	Location: USA Components: AHRF + HE + EA (PA and Health Care) + Incentives (PA) participants Comparison: Non-participants in AHRF, potential HE	Procter and Gamble employees continuously employed (1990-1992) and eligible for medical benefits through Metropolitan Life eligible = 8334 Participants: 3993 Non-participants: 4341 Characteristics (8334)	Annual hospital admissions per 1,000 (adjusted for age and gender) Participants Non-participants Annual lifestyle- related hospital admissions per 1,000 (adjusted for age and gender) Non-participants Participants Annual lifestyle- related hospital bed		245 150 21.69 17.03	-95.0 admiss/1000 -4.7 admiss/1000	2 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
			days by group (adjusted for age and gender) Intervention Group Comparison Group		106 days 83 days	-23 days	
Pelletier 2004 Boles 2004 (1st Survey: Feb-Sept 2001 2nd Survey: Feb-Mar 2002) Least (Before-After) Fair (3 limitations)	Location: USA Components: AHRF + HE + Incentives + EAPA No Comparison	Employees of large national employer. Participants were members of corporate-sponsored fitness centers in 7 locations throughout USA plus all of the employees in one field site. 5042 eligible employees 2264 respondents to 1st survey 500 (22% of 2264 & 10% of eligible) pre & post respondents	Percent self- reported overdue preventive visits (no visit in past year for individuals >50 yrs; no visit past year and chronic condition; no visit past 5 yrs for individuals ≤50 yrs)	32.4%	20.2%	-12.2 pct pts (- 37.7%), p<.001	1 y
Shi 1992 Shi 1993 (1988-1990) Greatest (Quasi experimental with non- equivalent comparison groups) Fair (2 limitations)	Location: Northern California; USA Components: AHRF + HE (with social support) + EH PA + Smoking policies + Incentives Comparison: AHRF +	Employees of PG & E divisions Intervention Group Level 4: 412 Intervention Group Level 3: 295 Comparison Group Level 1: 180	Mean hospital days per person Level 4 Difference Level 3 Difference Comparison-1	0.28 0.27 0.29	0.18 0.22 0.26	-0.07 days (-28.2%) -0.02 days (-9.2%)	1 y

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Tilley, 1999 Tilley 1999b Tilley 1997 (1993+1995r) Greatest (Group Randomized Trial) Fair (3 limitations)	Location: USA; Michigan, Ohio, Indiana, New York, Pennsylvania Components: AHRF + HE (group, one-on-one, self-help) + EA N + Incentives Comparison: AHRF + Incentives	Employees of 28 automotive plants 1369 Intervention group 1541 Comparison group	Compliance to recommendations regarding cancer screenings Intervention Comparison Difference Compliance confirmed Intervention Comparison Difference		36.0% (4.0) 35.0% (1.0) 23.0% (3.0) 19.0% (1.0)	1.0 pct pts (OR 1.46(1.1, 2.0) p =.006 4.0 pct pts (OR 1.71(1.1, 2.7) p <.001	24 m

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Bertera 1993 (1984-1985; 1986-1988) Least (Before-after) Fair (4 limitations)	Location: USA Components: AHRF + HE (group) + Environmental Changes + EA PA + Incentives (for behavior change) Comparison: Before-after	Employees of a large manufacturing company with more than 100 locations 7,178 intervention group	Mean self-reported illness days per employee: 0-2 behavioral risks (n=4603) 3 or more behavioral risks (n=2575) All	 2.8 days 4.1 days 3.2 days	 2.7 days 3.6 days 3.0 days	 -0.1 days (-3.6%) -0.5 days (-12.2%) -.24 days (-6.2%)	2 y
Goetzel 1996 Knight 1994 1989-on (baseline sample enrolled 1989-1992) Greatest (Prospective Cohort) Fair (3/4 limitations)	Location: Duke University, Durham, NC USA Components: AHRF + HE + ROPC + other NO Comparison	University employees enrolling in health promotion program (voluntary) Eligible=15,500 est. 4424 employees completed baseline profile Randomly selected f/u subset selected =1868 Responded=805 (45.5%)	Mean absentee hours (converted to days) over the period of study based on health promotion program participation: Participants Non-participants	 9.05 days 9.06 days	 10.20 days 10.75	Adj. Difference: -0.58 days; p<0.05	3 y
Musich 2003 Schultz 2002 1996-2001 Least (Before-After) Fair (4 limitations)	Location: Michigan USA Components: AHRF + HE (ind. & group) + ROPC (vouchers) Comparison: Before-After	2141 active employees 2,141 employees participated in all three HRAs in years 1, 2, and 5	Percent absent due to illness ≥6 days during previous year Y1-Y2 Y1-Y4	 13.0% 13.0%	 11.6% 10.7%	-1.4 pct pts (- 10.2%), p=.09 -2.3 pct pts (- 17.7%), p=.007	5 y
Nilsson 2001 (NR) Greatest (Individual Randomized trial) Fair (4 limitations)	Location: Sweden; Helsingborg (southern Sweden) Components: AHRF + HE	Employees of the Helsingborg city council. 4 branches of local public sector 568 employees	Sick days Intervention (n=46) Comparison (n=43)	6.0 (16.5) 4.5 (12.0)	2.9 (9.4) 7.4 (22.7)	-6.0 days (-70.6%)	12m

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
	(group) + Counseling Comparison: AHRF	454 (80%) questionnaires 128 had risk score sum of ≥9 65 intervention group 63 comparison group 43 (66%) intervention group F/U 46 (73%) comparison group FU					
Pelletier 2004 Boles 2004 1st Survey: Feb-Sept 2001 2nd Survey: Feb-Mar 2002 Least (Before-After) Fair (3 limitations)	Location: USA Components: AHRF + HE + Incentives + EAPA No Comparison	Employees of large national employer. Participants were members of corporate-sponsored fitness centers in 7 locations throughout USA plus all of the employees in one field site. 5042 eligible employees 2264 respondents to 1st survey 500 (22% of 2264 & 10% of eligible) pre & post respondents	Productivity: mean self-reported Absenteeism (the percentage of time missed from work due to health problems)	1.5%	1.0%	-.04 pct pts (- 21.0%), p=.31	1 y
Puska 1988 (1984-1985) Greatest (Group non- randomized Trial) Fair (4 limitations)	Location: Finland; North Karelia Components: AHRF + HE (mass media;) Comparison: AHRF + (HE- exposure to mass media series)	Selected worksites in region Inter: 8 worksites Comp: 8 worksites Recruited employees in study worksites Numbers <u>Grp</u> <u>Elgbl</u> <u>bsln</u> <u>1yr</u> <u>%</u> I 425 391 351 89 C 290 258 225 87	Self reported days off due to illness Intervention Comparison	12.6 8.7	12.4 10.8	-2.3 days (20.7%), p < .001	
Serxner 2001b and c (1996-1998) Moderate (Retrospective Cohort Design) Fair (3 limitations)	Location: USA; : Raleigh, NC Components: AHRF + HE (group or self-help) + EA PA & Med + ROPC	Employees of a global telecommunications company in the Raleigh area who had at least one short term disability (STD) episode, excluding maternity.	Mean net days lost: Participants (n=167) Non-participants (n=316)	29.2 33.2	27.8 38.1	-6.3 days (-17.0%) p<.05	2 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
	Comparison: Participants vs. Non-participants	1628 450 (28% STD claimants) - participants 1178 (72% STD claimants) - non-participants (those who did not complete a HRA during the study period)	Short term disability days per case Participants (n=167) Non-participants (n=316)	23.9 26.2	25.3 32.1	-4.5 days/case (-13.6%) p<.01	
Shi 1992 Shi 1993 (1988-1990) Greatest (Quasi experimental with non-equivalent comparison groups) Fair (2 limitations)	Location: Northern California; USA Components: AHRF + HE (with social support) + EH PA + Smoking policies + Incentives Comparison: AHRF +	Employees of PG & E divisions Intervention Group Level 4: 427 baseline 278 follow-up Comparison Group Level 1: 1030 baseline 785 follow-up	Mean self-reported injuries Level 4 (180) Level 3 (295) Level 1 (412) Days absent from work due to illness Level 4 (180) Level 3 (295) Level 1 (412)	4.6 injuries 4.3 injuries 4.0 injuries 5.2 days 5.2 days 5.1 days	2.8 injuries 3.5 injuries 3.4 injuries 3.2 days 4.1 days 4.8 days	-1.2 injuries (-28.4%) -0.2 injuries (-4.2%) -1.7 days (-34.6%) -0.8 days (-16.2%)	1 y
Shimizu 2003 1995-1998 Least (Before-After) Fair (3 limitations)	Location: Japan; Kanto area Components: AHRF + Group activities + Individual activities+ Incentives + Provider Counseling	Study plant: Kanto plant about 2000 workers in 1991 Male employees who were working from April 1991 to March 1999: 1029 (58.3%)	Number of sickness absentees (obtained from company records: number of employees with at least one absence due to sickness during study period)	93 sickness absentees	67 sickness absentees	-26 sickness absentees p<0.05	4 y
Wood 1997 (1985-1991) Greatest (Other design with concurrent comparison group) Fair (4 limitations)	Location: USA Components: AHRF + HE with incentives Comparison: Usual care (non-participants)	Employees of General Mills 1850 corporate employees 218 participants	Mean days absent due to illness reported by corporate personnel Intervention Comparison	2.9 days 3.1 days	2.4 days 3.7 days	-1.1 days (-30.3%)	6 y

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			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
Wood 1989 (1985-1986) Least (Before-After) Fair (4 limitations)	Location: USA Components: AHRF + HE with incentives Comparison: Before-After	Employees of General Mills 688 employees participated	Mean (sd) days absent due to illness (obtained from corporate personnel records) Participants Non-participants	2.5 (6.2) days 2.9 (6.0) days	2.6 (6.7) days 4.3 (9.7) days	-1.37 days (-29.9%)	2 y

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			Results				
			Effect measure	Baseline value	Outcome value	Value used in summary	Follow- up time
WHO 1986, 1983, 1982, 1980, 1974 6 y study period Greatest (group randomized) Fair (4 limitations)	Location: Europe (Belgium, Italy, Poland, United Kingdom) Components: AHRF + HE + referral (HTN) Comparison: Usual care	Recruited factories and eligible workers within recruited worksites N=80 factories (arranged in matched pairs with assignment to condition) 60,881 men age 40-59 recruited, evaluated across study sites Initial participation rate: 87% of those invited Worksites # Worksites: I: 40; C: 40 Employees Baseline Analysis I: NR 30,489 C:NR 26,971	Percent of study participants... Dying during the period of study (All Deaths) Intervention 4.34% Comparison 4.40%		-0.06 pct pts	Adjusted : -5.3% p=0.4	6 y
		With a Coronary Heart Disease event during the period of study Intervention 3.08% Comparison 3.27%		-0.19 pct pts	-10.2% p=0.07		
		With a fatal Coronary Heart Disease event during the period of study Intervention 1.41% Comparison 1.50%		-0.09 pct pts	-6.9% (95%CI -19%, +7%) p=0.8		
		A non-fatal Coronary Heart Disease event during the period of study Intervention 1.93% Comparison 2.11%		-0.18 pct pts	-14.8% (95% CI - 28%, +1%) p=0.06		

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