Table 1. Summary of Controlled Trials of Counseling for Physical Activity

Study, Authors, Year	Study Design	Patients	Theory	Provider Education & Materials	Protocol	Provider Adherence	Short-term: less than 6 months	Long-term: 6 months or more	Quality Comments
Counseling vs. Usual Care									
Physically Active for Life, Goldstein, 1999 (20)	**RCT** of 24 community-based primary care practices matched by size (34 physicians). PA only.	Sedentary adults (not meeting HP) who were 50 years and older. Intervention: n=181; mean age, 65 years; baseline stages: 13% precontemplative, 31% contemplative, 56% preparation stage; 12% nonwhite. Control: n=174; mean age, 66 years; baseline stages: 17% precontemplative, 33% contemplative, 50% preparation stage; 20% nonwite.	Transtheoretical (5 stages), social cognitive theory, health education.	Training, pretested manual, and poster for patients.	5 min. stage-based advice on benefits; assisted with self-efficacy and barriers; community resources; written PA prescription; follow-up visit at 1 mo. for adjusted prescription.	Intervention: 99% received PA prescription, 77% received follow-up prescription. Control: 1% received PA prescription	At 6 weeks, 28% of intervention patients met HP goal vs 21% of controls (difference of 7%; CI, -3% to 15%).	At 8 months, 28% of intervention patients met HP goal vs 23% of controls (difference of 5%; CI, -6% to 14%).	Good quality Met all criteria. Follow-up: 95% at 6 weeks, 88% at 8 months.
Norris, 2000 (22)	**RCT** of 32 primary care physicians in a staff-model HMO, stratified by clinic. PA only	Adults over age 30 scheduled for well visits. Intervention: n=384 adults; mean age, 53; baseline stages: 2.6% precontemplative, 51.3% contemplative, 46.3% action; 11% nonwhite. Control: n=463; mean age, 57; baseline stages: 3.4% precontemplative, 46.8% contemplative, 49.8% action; 8% nonwhite..	Transtheoretical (3 stages).	1 hour training, follow-up calls with providers.	Stage-based advice on benefits; PA preferences; assisted with barriers, self-efficacy, and self-management. Gave stage-based hand-outs; agreed on written goal. Follow-up call at one month and mailed educational materials	Intervention: 94% were counseled, 90% of these received PA prescription. Control: 65% were counseled, 81% of these received a PA prescription.			Fair quality. Follow-up: 93% at 6 weeks, 97% at 6 months. Baseline differences in preveious PA counseling. During the trial, control clinicians increased PA counseling rate.
Smith , 2000 (26)	**Non-randomized controlled trial** of patients in 27 general practices in Australia. Recruited controls first. PA only.	Active and inactive adults ages 25 to 65 years old. Prescription Only Intervention: n=380; mean age, 43 years; median total PA, 95 minutes; Prescription and Booklet Intervention: n=376; mean age, 43 years; median total PA, 120 minutes; Control: n=386, mean age, 42 years; total PA, 145 minutes.	Transtheoretical (5 stages).	20-30 mins of training.	Advice, provided PA prescription. Stage-based booklets sent to random sample.	Intervention: 62% received PA prescription. Inferred 468 of 471 sedentary patients for 99% adherence. Control: Not reported.	Among inactive patients at 6-10 weeks in the prescription plus booklet vs control: 31% met HP goal vs. 27% control (difference of 4%; CI, -5% to 12%); 46% increased 60 minute weekly vs. 35% control (difference of 11%; CI, 2% to 20%; *P*=0.02). In the prescription only vs control: 26% met HP goal vs. 27% (difference of -1%; CI, -10% to 7%); 41% increased 60 minutes weekly vs 35% control (difference of 6%; CI, -3% to 15%).	Among inactive patients at 7-8 months in the prescription plus booklet vs control: 24% met HP goal vs 17% (difference of 8%; CI, 0% to 15%; *P*=0.053); 36% increased 60 minute weekly vs 27% control (difference of 9%; CI, 0% to 17%; *P*=0.06). In the prescription only vs control: 22% met HP goal vs 17% (difference of 5%; CI, -3% to 12%); 32% increased 60 minutes weekly vs 27% control (difference of 4%; CI, -4% to 13%).	Fair quality Follow-up: 92% at 6-10 week, 83% at 7-8 months. Baseline differences in PA levels.

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Kerse, 1999 (21)	**RCT** of 42 metropolitan general practices (42 physicians). PA, social activity	Adults age 65 and older. Intervention: n= 135; mean age, 73 yrs; total activity, 281 minutes/week. Control: n= 132; mean age, 74 years; total activity, 328 minutes/week	Not reported	3 hour seminar with exercise physiologist, sociologist, and geriatrician; 15 minutes follow-up detailing; prompt card.	Counseling for PA and social activity. Other counseling techniques not reported.	Intervention: 32% of patients reported discussing PA with physician. Control: 21% reported discussing PA with physician		At 1 year, intervention patients increased walking 44 min/week more than control patients (CI, 4 to 84 min/week; P=0.03.	Fair quality Follow-up: intervention, 90% at 1 year; control, 85% at 1 year. Counseling interventions not clearly defined, low provider adherence.
Change of Heart, Steptoe, 1999 (23)	**RCT** of 20 general practices (20 nurse practitioners), minimization technique. PA, smoking, diet	Adults 18-69 years with 1or more CHD risk. Intervention: n=316; mean age, 48; 80% BMI >25 kg/m^2 plus sedentary. Control: n=567; mean age, 46; 79% BMI > 25 kg/m^2 plus sedentary.	Transtheoretical (5 stages)	3 day training with refresher day at 6 months.	Stage-based advice on benefits and attitudes; assisted with incentives, self monitoring, relapse prevention, barriers. Telephoned patients between counseling sessions. Mailed educational materials.	Not reported	At 4 months, intervention patients had 13 (20-minute) activity sessions/4 weeks vs 9 sessions/4 weeks in controls (difference of 3.7; CI, 1.3 to 6.3 sessions/4 weeks; P<0.05).	At 1 year, intervention patients performed 14 sessions/4 weeks vs 9 sessions/4 weeks in controls (difference of 3.9; CI, 1.0 to 6.8 sessions/4 weeks; P<0.05).	Fair quality Follow-up: intervention, 65% at 4 months, 54% at 1 year; control, 74% at 4 months, 62% at 1 year
Burton, 1995 (19)	**RCT** of 4,195 Medicare patients in 119 practices. PA, immunization, smoking, drinking	Sedentary Medicare beneficiaries. 61% age 65 to 74 years; 33% age 75 to 84 years; 6% age 85+ years. Intervention:n=2,105; Control: n=2,090	Suggested but not directed.	Continuing medical education credits on preventive and counseling visits. Educational materials.	Feedback and advice from pre-visit risk screen, assisted with community resources. 20 minute follow-up counseling sessions as needed. Most counseling details not reported.	Intervention: 89% of physician encounter forms contained PA discussion note. Inferred that up to 39% of patients attended follow-up counseling visit that included PA. Control: not reported.		At 2 years, 42% of intervention patients in good health vs 42% control group patients in good health increased PA. 20% of intervention patients in poor health increased PA vs 18% of control patients in poor health (difference of 3%; CI, -4% to 9%).	Fair quality Follow-up: intervention, 75% at 2 years; control, 73% at 2 years. Counseling interventions not clearly defined

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Comparison of different interventions (no usual care)									
Activity Counseling Trial, 2001 (25, 33, 34)	**RCT** of 874 adult patients from 11 primary care settings (51 physicians, 2 physician assistants, 1 nurse practitioner). PA only.	Inactive adults (ages 35 to 75 years) in stable health. Intervention: Advised group: n=292; avg age, 51 years; Assisted group: n=293; avg age 52 years; Counseled group: n=289; avg age 52 years.	Social cognitive theory.	Clinicians received advice training; health educators received assist and behavioral counseling training.	3 minutes of initial advice (Advised Group); initial advice and 30-40 minutes of behavioral counseling plus telephone follow-up (Assissted Group); initial advice, behavioral counseling, and biweekly telephone counseling for first 6 weeks, monthly calls thereafter, weekly class offerings (Counseled Group).	99% received initial 3 minutes of advice; documented for 97%. Avg contact time: Advised Group: 18 minutes over 24 month study; Assisted Group: 2.7 hours; Counseled Group: 8.9 hours for women, 5.6 hours for men.		At 6, 12, and 24 months, no difference in total energy expenditure for male or female patients with one exception.Women in the counseled group had an average total energy expenditure of 33.3 kcal*kg-1*day-1 at 6 months vs 32.7 kcal*kg-1*day-1 for women in the assisted group (difference of 0.54 kcal*kg-1*day-1; CI, 0.07 to 1.0; adjusted *P*=0.01).	Good quality. Follow-up: 91% at 24 months, 78% completed fitness test (Vo2 max) at 24 months Met all criteria
Swinburn, 1998 (24)	**RCT** of 491 patients of 37 providers in 2 New Zealand urban centers. PA only.	Sedentary adults. 50% had at least one coronary heart risk factor. Intervention: n=239; Control: 252.	Self-management (goal setting).	1 training session on assessing and prescribing physical activity.	Advice (avg. 5 minutes) and written PA prescription. Stage-based booklets sent to random sample. Control group received advice only.	Not reported.	More patients receiving advice and a written PA prescription performed any activity (51% to 86%, an increase of 35%) at 6 weeks vs patients who received only advice (56% to 77%, an increase of 21%) (difference of 14%; CI, 6% to 22%; *P*=0.004). No difference in the number of increased minutes spent in PA for the groups, 156 minutes per 2 weeks.		Fair quality. Follow-up: Intervention: 91% at 6 weeks; Control: 94% at 6 weeks. Intervention not well defined. Adherence not reported.

PA = Physical Activity, HP = *Healthy People 2010* recommendation (30 minutes of moderate physical activity on at least 5 days per week or 20 minutes of vigorous activity on at least 3 days per week).