



Fuel Up
Lift Off!
LA



UCLA SCHOOL of PUBLIC HEALTH
CEHD
CENTER TO ELIMINATE
HEALTH DISPARITIES



Lift Off! 10-Minute Physical Activity Breaks

Lift Offs Work!: the rapidly growing evidence base

The inordinately high levels of sedentary behavior observed in population-based studies, e.g., more than 40% of Los Angeles County adults getting less than 10 minutes per week of continuous moderate-to-vigorous physical activity,¹ commensurate with an overweight rate of nearly two-thirds of US adults overall² and one-third of children of color,³ underscores the critical need for incremental behavior change approaches targeting the sedentary and overweight.

Eight research studies, demonstration projects or public health department service programs support the feasibility and efficacy of incorporating 10-minute structured exercise breaks into daily organizational routine, and are described briefly below. [This evidence demonstrates that:](#)

- (1) [there is considerable receptivity to physical activity integration into the conduct of “business,” both at the individual and organizational levels;](#)⁴⁻⁷
- (2) [these sessions contribute meaningfully to daily accumulation of moderate-to-vigorous physical activity;](#)^{8, 9}
- (3) [exercise breaks serve as a motivational “teachable moment” linking sedentary behavior to health/fitness status for inactive individuals;](#)¹⁰
- (4) [improvements in clinical outcomes from as little as one 10-minute break/day \(e.g., blood pressure, waist circumference, mood states, cumulative trauma disorders, attention span\) have been demonstrated;](#)^{1, 11-13} and
- (5) [“spill-over” or generalization to increase active leisure may occur.](#)¹

Such “push” interventions, e.g., non-discretionary time exercise breaks, near-parking and elevator restrictions that rely less on (and potentially constructively influence) individual initiative and motivation to be active, particularly in ethnically and socioeconomically diverse populations with numerous barriers to active leisure, may have greater organizational and societal impact (increased productivity, medical care cost savings) than past efforts.^{4, 14-23}

Key findings across studies include: (1) role models utilized (study and site staff, video subjects) must reflect the spectrum of characteristics of the target population—ethnicity, gender, age, weight; (2) experiential learning enhances sustainability and salience; (3) organizational leadership commitment is critical and must be secured at the outset and reinforced repeatedly; (4) organizations, and their staff members, are at different points on the change continuum, and intervention strategies must accommodate these difference, i.e. including both approaches that require active choice (“pull”) and passive structural (“push”) ones; (5) intervention components linked to existing organizational structures/ vehicles (e.g., staff meetings, newsletters) enhance exposure levels and sustainability; and (6) culturally salient music selection is an essential ingredient in engaging groups in movement. This concept is built on social cognitive theory, social ecological models; and social marketing approaches which incorporate the economic concerns of both organizational leaders/employers and individuals.^{1, 23-30}

Westinghouse Strength & Flexibility Program. In a group-randomized, controlled, pre-test/post-test, intervention trial, employees who assembled computer boards performed a set of 23 flexibility and strength exercises, designed to prevent lower back and carpal tunnel injury, for 10 minutes each day on company time under supervision.¹¹ No study sample demographics were provided. Daily employee participation rates were 97-100%. After 6 months of program implementation, significant improvements were observed in wrist flexion, wrist extension, low-back flexibility, fatigue, anger, and mood state.

LAC DHS Lift Off Feasibility Study. A randomized, controlled, post-test only, intervention trial tested the effect of incorporating a 10-minute exercise break (*Lift Off*) into longer (≥ 1 hour) staff meetings and training seminars: (a) in engaging sedentary, “pre-contemplators” in physical activity; and (b) on self-reported mood/well-being indicators.¹⁰ The study was implemented in 26 meetings with 449 employees, predominantly overweight, middle-aged women of color. More than 90% of meeting attendees participated in the exercises. Results showed that captive audiences may be engaged in brief exercise bouts as a part of the workday, regardless of physical activity stage of change or weight status. Furthermore, participation in the breaks may produce at least short-term motivational benefit, by appropriately eroding complacent self-perceived good health and fitness status among the sedentary. Being confronted experientially with one’s own sub-optimal fitness level (a common refrain is “are you sure it’s only been 5 minutes?!”) may provide a teachable moment/reality check, potentially increasing motivation to be active by assisting them in making the link between good health status and a physically active lifestyle. Importantly, while most interventions operate psychologically to motivate behavior change, the social conformity-influenced exercise participation by sedentary individuals here adds physiological synergy to the psychological impetus—enjoyment/enhanced feelings of well-being complemented by a reminder of her/his unfit state.

Steppin’ Up to Better Health/AABLH Organizational Wellness Program. AABLH adapted and implemented the Los Angeles County organizational wellness intervention, providing training in

LIFT OFF! 10-Minute Physical Activity Breaks
*A Service of the UCLA School of Public Health
Center to Eliminate Health Disparities (CEHD)*

incorporating physical activity and healthy food choices into the routine “conduct of business” in a variety of predominantly public and private, non-profit sector agencies. A total of 35 organizational units, with more than 700 individuals as staff, members or clients (mostly overweight/obese African-American women), completed the 12-week, or shortened and retooled 6-week curriculum. Attendance and retention rates between baseline and post-intervention assessment were quite low for the 12-week curriculum (37% retention), but substantially higher for the 6-week offering (66% attendance, 92% retention). Feelings of sadness or depression decreased significantly among 12-week participants ($p=0.00$), fruit and vegetable intake increased significantly (+0.5 servings/day, $p=0.00$), and BMI decreased marginally (-0.5 kg/m^2 , $p=0.08$), with no significant changes in these outcomes in the 6-week group. However, the numbers of days on which individuals participated in vigorous physical activity increased significantly among 6-week participants (+0.3, $p=0.00$), but not in the 12-week group.¹

African Americans Building a Legacy of Health (AABLH). As a part of this project of the CDC’s REACH 2010 initiative,³¹ community-based organizations serving targeted areas of Los Angeles participated in one or more interventions originally developed by the LAC DHS to incorporate physical activity into routine organizational practice. These interventions centered on leadership cultivation to model the behaviors promoted. Level of organizational support for physical activity integration was assessed, as reflected in the extent of organizational commitment associated with each intervention: participation in exercise breaks at REACH meetings and events (lowest level); inviting REACH staff to lead exercise breaks at their organizational functions (low intermediate level); hosting an organizational wellness training series on these types of practical strategies to increase physical activity and healthy food access (high intermediate level); and subcontracting with REACH to provide physical activity-related programs and services (high level). Individual-level data characterizing the socio-demography, health status and health behaviors of organization staff/members/clients underscored the risk burden in the targeted population: 66% overweight, 30% obese; >40% completely sedentary (<10 minutes of physical activity *weekly*); 33% hypertensive, 26% hypercholesterolemic; 86% female, 73% African-American, 22% college-educated. Nearly half of the ~240 participating organizations actively embraced physical activity integration (intermediate-high level), with >25% committed at the highest level of support. Broad capacity and support for organizational integration of physical activity was demonstrated, with level of commitment varying by organization type.

FitWIC Wellness Programs. Six WIC sites (3 intervention, 3 control) at three California agencies participated in a pilot staff wellness intervention program to improve staff effectiveness in preventing childhood obesity.³² Compared to control site staff, intervention site staff perceived greater workplace environmental support for their efforts to make healthy food choices and be physically active, and reported changes in the types of foods served during meetings and the priority placed on physical activity in the workplace. Intervention staff were also more likely to encourage WIC participants to engage in physical activities with their children and reported greater sensitivity in handling weight-related issues. This study has important implications for the potential reach of internal fitness promotion in organizations serving high risk populations, given this “multiplier effect” (positive influence) of healthy provider behavior on clients.

Pausa para tu salud! project.¹² In the first year of implementation (January 2003), 400 employees of the Mexican Ministry of Health (national department of health and social services)

LIFT OFF! 10-Minute Physical Activity Breaks
A Service of the UCLA School of Public Health
Center to Eliminate Health Disparities (CEHD)

(population statistics: 24% overweight/non-obese, 38% obese, 81% of women with abdominal obesity or waist circumference > 80 cm) participated in daily 10- to 15-minute mid-day exercise breaks during work time. 180 were evaluated after one year of intervention, and, on average, systolic BP declined by 2.1 mm Hg and waist circumference decreased by 1.4 cm.

Health-e-AME Faith-Based Physical Activity initiative. This 3-year, CDC-funded, statewide faith-based physical activity promotion initiative of University of South Carolina's/Medical University of South Carolina's⁷ built upon a nutrition promotion program featuring a website in which nutritionists adapted recipes submitted by church members to increase fiber and decrease fat. Dr. Yancey consulted on this project, currently in Yr 03, which has trained 215 representatives from 98 African Methodist Episcopal churches. A menu of passive and active strategies are offered, and 54% are implementing at least one program component—66% of these are implementing their adaptation of the 10-minute *Lift Off, Exercise your Faith for 10*, one of the top 3 components selected. Exercise breaks are also conducted by project staff at all annual AME pastors' conferences and post-conference meetings. Baseline data on a random sample of 571 members, all African-American, show that 29% are regularly active and 18% are sedentary, 71% women, 75% overweight/obese, 56% 50+ years of age, 50% with <high school education.

Take 10! or Physical Activity Across the Curriculum (in progress). This 3-year, NIH-funded University of Kansas study has, to date (beginning of Year 03, August 2005), successfully engaged 70%+ of elementary school non-physical education teachers in conducting 10-minute exercise breaks in 14 low-income intervention schools in 3 Kansas cities (Kansas City, Topeka and Lawrence) in which ~75% of students qualify for free or reduced-cost lunches. One 6-hour, off-site in-service training session is provided at the beginning of each year, which teachers are paid \$100 to attend. At the end of each school year, they provide a follow-up session for which they're paid \$50, a sort of focus group in which teachers discuss barriers, facilitators, etc. Time has been required for the teachers to get accustomed to what's being asked and not make it more difficult than it needs to be, i.e. most of the lessons/movements are very simple, and the only thing that's important is that the kids and teachers are up and moving. Music to use in leading the exercise sessions was requested in the staff training sessions, has been provided in the form of several oldies tapes/CDs popular with both teachers and students. The gradual increase in the number of teachers engaged each year and the number of minutes provided (average of >70 minutes/wk provided and nearly 50% of teachers achieving the 90-100 minute/wk goal after two years) and is evidence of promulgation of a social/cultural norm change. Earlier studies of *Take 10!* by ILSI (a Georgia non-profit) have demonstrated the feasibility and utility of this approach in regularly engaging students and teachers in exercise of at least moderate intensity in 10-minute bouts of sufficient length to count toward the minimum 30-minute per day CDC daily recommendation,^{5, 8, 13} e.g., average MET levels of 5-7 for first, third and fifth graders, with commensurate caloric expenditures of 27-36 Kcal and step counts of 800-1000 per 10-minute session. A similar concept has been implemented in Cyprus, a 15-minute work-out for school staff and students every morning.⁶

LIFT OFF! 10-Minute Physical Activity Breaks
*A Service of the UCLA School of Public Health
Center to Eliminate Health Disparities (CEHD)*

References

1. Yancey AK, Lewis LB, Guinyard JJ, Sloane DC, Nascimento LM, Galloway-Gilliam L, Diamant AL, McCarthy WJ. Putting promotion into practice: the African Americans Building a Legacy of Health organizational wellness program. *Health Promot Pract*. In press, 2005.
2. Flegal KM, Carroll MD, Ogden CL, Johnson CL. Prevalence and trends in obesity among US adults, 1999-2000. *Jama*. Oct 9 2002;288(14):1723-1727.
3. Ogden CL, Flegal KM, Carroll MD, Johnson CL. Prevalence and trends in overweight among US children and adolescents, 1999-2000. *Jama*. Oct 9 2002;288(14):1728-1732.
4. Yancey AK, Simon PA, McCarthy WJ, Lightstone AS, Fielding JE. Ethnic and gender differences in overweight self-perception: relationship to sedentariness. *Obes Res*. In press, 2006.
5. Lloyd LK, Cook CL, Kohl HW. A pilot study of teachers' acceptance of a classroom-based physical activity curriculum tool: TAKE 10! *TAHPERD Journal*. 2005;73(3):8-11.
6. Lobstein T. Comment: preventing child obesity -- an art and a science. *Obes Rev*. Feb 2006;7 Suppl 1:1-5.
7. Wilcox S, Laken M, Anderson T, Bopp M, Bryant D, Gethers O, Jordan J, McClorin L, O'Rourke K, Parrott AW, Swinton R, Yancey AK. The Health-e-AME Faith-Based Physical Activity Initiative: Program Description and Baseline Findings. *Health Promot Pract*. In press 2005.
8. Stewart JA, Dennison DA, Kohl HW, Doyle JA. Exercise level and energy expenditure in the TAKE 10! in-class physical activity program. *J Sch Health*. Dec 2004;74(10):397-400.
9. Miyashita M, Burns SF, Stensel DJ. Exercise and postprandial lipemia: effect of continuous compared with intermittent activity patterns. *Am J Clin Nutr*. Jan 2006;83(1):24-29.
10. Yancey AK, McCarthy WJ, Taylor WC, Merlo A, Gewa C, Weber MD, Fielding JE. The Los Angeles Lift Off: a sociocultural environmental change intervention to integrate physical activity into the workplace. *Prev Med*. Jun 2004;38(6):848-856.
11. Pronk SJ, Pronk NP, Sisco A, Ingalls DS, Ochoa C. Impact of a daily 10-minute strength and flexibility program in a manufacturing plant. *Am J Health Promot*. Jan-Feb 1995;9(3):175-178.
12. Lara A. Obesidad y diabetes: participacion de la sociedad civil. Paper presented at: Public Health Institute Board of Directors Meeting; December 6, 2004; Puerto Vallarte, Mexico.
13. Metzler MW, Williams S. A classroom-based physical activity and academic content program: more than a "pause that refreshes"? Submitted, 2005.
14. King AC, Jeffery RW, Fridinger F, Dusenbury L, Provence S, Hedlund SA, Spangler K. Environmental and policy approaches to cardiovascular disease prevention through physical activity: issues and opportunities. *Health Educ Q*. Nov 1995;22(4):499-511.
15. Kumanyika SK. Minisymposium on obesity: overview and some strategic considerations. *Annu Rev Public Health*. 2001;22:293-308.
16. Yancey AK, Kumanyika SK, Ponce NA, McCarthy WM, Fielding JE, Leslie J, Akbar J. Population-based interventions engaging communities of color in healthy eating and active living: a review. *Preventing Chronic Disease*. Jan 2004 2004;1(1):1-18.
17. Wang F, McDonald T, Champagne LJ, Edington DW. Relationship of body mass index and physical activity to health care costs among employees. *J Occup Environ Med*. May 2004;46(5):428-436.

LIFT OFF! 10-Minute Physical Activity Breaks
A Service of the UCLA School of Public Health
Center to Eliminate Health Disparities (CEHD)

18. Taylor WC. Transforming work breaks to promote health. *Am J Prev Med.* Dec 2005;29(5):461-465.
19. Yancey AK, Robinson RG, Ross RK, Washington R, Goodell HR, Goodwin NJ, Benjamin ER, Langie RG, Galloway JM, Carroll LN, Kong BW, Leggett CJ, Williams RA, Wong MJ. Discovering the full spectrum of cardiovascular disease: Minority Health Summit 2003: report of the Advocacy Writing Group. *Circulation.* Mar 15 2005;111(10):e140-149.
20. Zimring C, Joseph A, Nicoll GL, Tsepas S. Influences of building design and site design on physical activity: research and intervention opportunities. *Am J Prev Med.* Feb 2005;28(2 Suppl 2):186-193.
21. Andreyeva T, Sturm R. Physical activity and changes in health care costs in late middle age. *J Phys Activ Health.* 2006;3:S6-S19.
22. Marcus B, Williams D, Dubbert PM, Sallis JF, King AC, Yancey AK, Franklin B, Buchner D, Daniels S, Claytor R. Physical activity interventions: what we know and what we need to know. A statement from the Council on Clinical Cardiology (Subcommittee on Exercise, Rehabilitation, and Prevention) and the Council on Nutrition, Physical Activity, and Metabolism (Subcommittee on Physical Activity) of the American Heart Association. *Circulation.* Invited—revisions requested, 2006.
23. Yancey AK, Ory MG, Davis SM. Dissemination of physical activity promotion interventions in underserved populations. *Am J Prev Med.* In press, 2006.
24. Grier S, Bryant CA. Social marketing in public health. *Annu Rev Public Health.* 2005;26:319-339.
25. Bandura A. Health promotion by social cognitive means. *Health Educ Behav.* Apr 2004;31(2):143-164.
26. Bandura A. Human agency in social cognitive theory. *Am Psychol.* Sep 1989;44(9):1175-1184.
27. Stokols D, Grzywacz JG, McMahan S, Phillips K. Increasing the health promotive capacity of human environments. *Am J Health Promot.* Sep-Oct 2003;18(1):4-13.
28. Stokols D, Allen J, Bellingham RL. The social ecology of health promotion: implications for research and practice. *Am J Health Promot.* Mar-Apr 1996;10(4):247-251.
29. Sturm R. The economics of physical activity: societal trends and rationales for interventions. *Am J Prev Med.* Oct 2004;27(3 Suppl):126-135.
30. Sturm R. The effects of obesity, smoking, and drinking on medical problems and costs. Obesity outranks both smoking and drinking in its deleterious effects on health and health costs. *Health Aff (Millwood).* Mar-Apr 2002;21(2):245-253.
31. Yancey AK, Lewis LB, Sloane DC, Guinyard JJ, Diamant AL, Nascimento LM, McCarthy WJ. Leading by example: a local health department-community collaboration to incorporate physical activity into organizational practice. *J Public Health Manag Pract.* Mar-Apr 2004;10(2):116-123.
32. Crawford PB, Gosliner W, Strode P, Samuels SE, Burnett C, Craypo L, Yancey AK. Walking the talk: Fit WIC wellness programs improve self-efficacy in pediatric obesity prevention counseling. *Am J Public Health.* Sep 2004;94(9):1480-1485.