Pedometer-based programs result in modest weight loss

Clinical question Do pedometers facilitate weight loss?

Bottom line Using pedometers to guide physical activity, even when not accompanied by dietary interventions, promotes modest weight loss among sedentary and obese or overweight individuals. (Level of evidence = 2a)

Synopsis These authors systematically reviewed multiple databases looking for controlled trials or quasi-experimental studies that assessed the effects of pedometers but not dietary interventions in sedentary, overweight, or obese adults. In addition to the database search, the authors also contacted experts to find additional studies. Two investigators independently assessed the methodologic quality of the included studies with discrepancies resolved by consensus. Only 9 studies with a total of 307 participants met their inclusion criteria. Four of the studies were randomized trials. Several studies included behavioral therapy interventions along with pedometer use. The studies varied in duration from 4 weeks to 1 year. In all but one study the participants lost weight (range = 0.5-3.7 kg); including the negative study, the mean weight loss was 1.27 kg. Not surprisingly, the authors also found that the longer the study, the greater the weight loss. They did not find weight loss to be associated with study quality. Finally, the authors used three different methods and did not find any evidence for publication bias.

Richardson CR, Newton TL, Abraham JJ, et al. A meta-analysis of pedometer-based walking interventions and weight loss. *Ann Fam Med.* 2008;6(1):69-77.

Digital mammography for all is too costly

Clinical question Is digital mammography cost-effective?

Bottom line In the current US health care system, switching to digital mammography for all women dramatically increases costs while also increasing death rates from breast cancer. Screening all women aged 40 to 49 years with digital mammography would be cost-effective if its use is shown to be effective in decreasing breast cancer-related mortality. Limiting digital mammography only to women with dense breasts is not cost-effective. (Level of evidence = 2b)

Synopsis Cost-effectiveness analyses convert all the factors involved in the decision-making process—beneficial and harmful outcomes and cost—into a dollar amount. This analysis evaluated the cost-effectiveness of using digital mammography versus film mammography in different age categories of women and in normal versus dense breasts. The researchers used effectiveness data from the Digital Mammography Imaging Screening Trial (DMIST) that evaluated the relative benefit of digital mammography versus film mammography in almost 50,000 women. (*New Engl J Med.* 2005;353[17]:1773-1783). The DMIST study only evaluated the diagnosis of breast cancer, and these authors had to extrapolate the effects on breast cancer-related mortality. They evaluated the cost-effectiveness of completely switching to digital mammography, using it only in women aged 40 to 50 years, and using it in women with dense breasts. They used probabilities derived from the DMIST regarding effectiveness and quality-of-life values based on different stages of breast cancer. Costs consisted of the cost of the mammogram, further workup costs, and personal time cost for patients. The authors did not include other utilities such as the psychological costs of a breast cancer diagnosis or a false-positive mammogram. The perspective used for the analysis was societal, as well as the effect on Medicare costs. Screening all women with digital mammography would add another $331,000 per quality-adjusted life-year to the cost of breast cancer screening, a societal cost that is typically considered to be too high for society to bear. Also, this strategy is less effective overall in that it allows more deaths from breast cancer in older women and fewer gained quality-adjusted life-years. Using digital mammography only for women aged 40 to 50 years is cost-effective, provided that the benefit of screening in this group outweighs its harms. Density-targeted screening strategies are more costly and of uncertain value, especially in older women.

Tosteson AN, Stout NK, Fryback DG, for the DMIST Investigators. Cost-effectiveness of digital mammography breast cancer screening. *Ann Intern Med.* 2008;148(1):1-10.

Vitamin K improves the stability of anticoagulation

Clinical question Can vitamin K supplementation help achieve stable control of anticoagulation in adults taking warfarin?

Bottom line Vitamin K supplementation can help achieve control of anticoagulation in adults with unexplained instability of response to warfarin. This may be a welcome relief to frustrated patients, clinicians, and staff. (Level of evidence = 1b)

Synopsis Anticoagulation that is difficult to control in adults taking warfarin may be due to an irregular intake of foods that contain vitamin K. These investigators identified 70 warfarin-treated adults with unstable anticoagulation, defined as having a standard deviation of international normalized ratio values greater than 0.5 (indicating a wide swing in values) and at least three warfarin dose changes in the previous 6 months. Eligible patients randomly received vitamin K (150 mcg daily) or matched placebo in a double-blind fashion (concealed allocation assignment). Individuals masked to treatment assignment assessed outcomes. Complete follow-up occurred for 97% of the patients at 6 months. Using intention-

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to-treat analysis, stable anticoagulation control occurred in significantly more patients taking vitamin K supplementation than in patients taking placebo (54% vs 21%; number needed to treat = 3; 95% CI, 2-10). Daily warfarin dose requirements also increased in significantly more patients in the vitamin K group than in patients in the placebo group (16% vs 1.5%, respectively). No adverse events occurred in either treatment group.

Sconce E, Avery P, Wynne H, Kamali F. Vitamin K supplementation can improve stability of anticoagulation for patients with unexplained variability in response to warfarin. *Blood.* 2007; 109(6):2419-2423.

AAP Practice Guideline: Delaying feeding does not prevent atopy

Clinical question Should solid food be delayed in infants beyond 4 months to 6 months? Do specialized formulas prevent atopy in high-risk newborns?

Bottom line This "guidance for the clinician" from the American Academy of Pediatrics replaces their previous policy statement. Citing a lack of good research, the Academy does not give recommendations but instead summarizes the (lack of) evidence for several common assumptions about newborn feeding. There is a lack of evidence that maternal avoidance of allergens (eg, peanuts) prevents atopy. Delaying the introduction of solid foods beyond 4 months to 6 months does not prevent atopic disease, including avoidance of fish, eggs, or peanuts. For infants at high risk of developing atopic disease, breastfeeding instead of using milk-based formula decreases the incidence of atopic dermatitis and cow milk allergy but does not seem to prevent allergic asthma. Soy-based formula does not prevent allergy. (Level of evidence = 5)

Synopsis Fifty years ago, infants were fed pureed fish and other solid foods beginning at 3 weeks of age. Current wisdom now delays solid food until after 4 months to 6 months of exclusive formula feeding or breast-feeding. These current guidelines address this and other common nuggets of wisdom. The American Academy of Pediatrics uses a semi-evidence-based approach to establishing these guidelines, starting with the evidence but not clearly explaining how they use it to develop their policies. Further complicating matters is the lack of good evidence evaluating the role of diet in infants in creating or preventing allergy or general atopy. Given that this topic is not yet fully explored, here are the conclusions of the Academy: 1. Dietary restriction during pregnancy does not seem to prevent atopic disease in infants, with the possible exception of atopic eczema. 2. For infants at high risk of developing allergy—those with a first-degree relative with allergy—exclusive breast-feeding may decrease the risk of atopic dermatitis or cow milk allergy in the first 2 years of life, as compared with feeding milk-based formula. 3. Breast-feeding may prevent wheezing in infancy, though protection against asthma occurring beyond 6 years of age is unlikely. 4. Using special formulas, such as hydrolyzed protein products, rather than cow milk formula may offer a slight benefit in infants at high risk of developing atopy who are not breast-fed. 5. Soy-based infant formula does not prevent allergy development better than cow milk-based formula. 6. Solid foods of any sort, including highly allergic foods, can be introduced at 4 months to 6 months. There is no benefit to delaying their introduction. 7. Of course, foods already identified as causing an allergic reaction in children should be avoided.

Greer FR, Sicherer SH, Burks AW; American Academy of Pediatrics Committee on Nutrition; American Academy of Pediatrics Section on Allergy and Immunology. Effects of early nutritional interventions on the development of atopic disease in infants and children: the role of maternal dietary restriction, breastfeeding, timing of introduction of complementary foods, and hydrolyzed formulas. *Pediatrics.* 2008;121(1):183-191.

Levels of evidence in **Bottom line** are explained at www.essentialevidenceplus.com/levels.html.
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Screening for carotid artery stenosis is not helpful

Clinical question Should adults be screened to detect asymptomatic carotid artery stenosis?

Bottom line The use of duplex ultrasonography to detect clinically significant carotid artery stenosis in asymptomatic patients is not helpful and is likely to cause harm (grade D recommendation). Widespread screening leads to a significant number of false-positive results, which in turn lead to further testing or treatment that can cause harm. There is no research showing that this type of screening leads to better outcomes. (Level of evidence = 5)

Synopsis In the United States, enterprising clinicians with ultrasound machines travel from city to city offering, for a price, to scan the carotid arteries of people without symptoms of transient ischemia or a history of stroke. The sensitivity (94%) and the specificity (92%) of carotid duplex ultrasound to detect stenosis of 60% or more are fairly good. However, given a prevalence rate of carotid artery stenosis of 1% to 5% for every 100,000 patients screened, between 7,600 and 7,920 patients will be told incorrectly that they have carotid artery stenosis and will be sent either for further testing with angiography, which has its own risk of inducing stroke, or for unnecessary surgery. There is no direct evidence that this type of screening reduces fatal or nonfatal stroke. In this general population, carotid endarterectomy may produce a slight benefit that is nearly outweighed by the increase in stroke (up to 6%) caused by the procedure.

US Preventive Services Task Force. Screening for carotid artery stenosis: US Preventive Services Task Force recommendation statement. *Ann Intern Med.* 2007;147(12):854-859. Wolff T, Guirguis-Blake J, Miller T, et al. Screening for carotid artery stenosis: an update of the evidence for the US Preventive Services Task Force. *Ann Intern Med.* 2007;147(12):860-870.

Acupuncture is effective for some with chronic prostatitis

Clinical question Can acupuncture reduce symptoms in men with chronic prostatitis/chronic pelvic pain syndrome?

Bottom line Some patients with chronic prostatitis/chronic pelvic pain syndrome –symptoms without evidence of bacterial infection–may respond to acupuncture performed twice weekly for 10 weeks. Pain scores after acupuncture improved significantly compared with pain scores after sham acupuncture, and the improvement continued at least 6 months after stopping treatment. (Level of evidence = 1b–)

Synopsis Chronic prostatitis/chronic pelvic pain syndrome is characterized by pain, usually urinary symptoms, and, unfortunately, no effective treatment. This study, conducted in Malaysia, evaluated the role of acupuncture in 89 men with US National Institutes of Health Chronic Prostatitis Symptom Index scores of at least 15 of a possible 43 (average score = 25). The men were randomized (allocation concealment uncertain) to receive twice weekly 30-minute treatments for 10 weeks of either acupuncture or sham acupuncture. The treatment used four points–CV1, CV4, SP6, and SP9–at the appropriate depth. Sham acupuncture consisted of superficial needling 15 mm to the left of actual acupuncture points. When asked during treatment and at the end of treatment, most patients in both groups thought they had received acupuncture, confirming blinding and producing a placebo effect of similar magnitude in both groups. By the end of the treatment period (10 weeks), 72.7% of patients receiving acupuncture and 47% of those receiving sham therapy had at least a 6-point decrease in total scores, which, by consensus, was felt to be a clinically important difference ($P = .02$). The effect was maintained after discontinuation of acupuncture: 6 months after discontinuation, 32% of treated men continued to experience a decrease in symptoms as compared with 13% of patients in the sham group ($P = .04$).

Lee SW, Liong ML, Yuen KH, et al. Acupuncture versus sham acupuncture for chronic prostatitis/chronic pelvic pain. *Am J Med.* 2008;121(1):79e1-79e8.