Pedometer Use Motivates BMI, Blood Pressure Dip

BY MARY ANN MOON  Contributing Writer

Using a pedometer significantly increases a patient’s physical activity level—by a magnitude of about 1 mile of walking per day, results of a meta-analysis suggest. This increased activity level in turn appears to lead to clinically relevant reductions in body mass index and blood pressure, according to Dr. Dena M. Bravata of Stanford (Calif.) University and her associates.

Pedometers are small, relatively inexpensive devices worn at the hip to count the number of steps a person walks each day. They are recently becoming popular “as tools for motivating and monitoring physical activity,” with wearers often encouraged to aim for taking 10,000 steps daily. To date, there has been no detailed evidence of the device’s effectiveness, however, and no indication that it improves health outcomes, the investigators wrote.

They conducted a meta-analysis of 26 studies, including 8 randomized clinical trials, which reported pedometer use in adult outpatients. Pooling the data allowed them to evaluate outcomes for 2,767 subjects. Mean interquartile data were 8.2 steps per day.

Using a pedometer significantly raised participants’ activity levels by an average of more than 2,000 steps per day, as long as it was done in conjunction with a specified step goal and the use of a step diary. Subjects increased their walking whether they worked toward a 10,000-step target or an alternative personalized step goal (JAMA 2007;298:2226-304).

Those who used a pedometer also significantly decreased their body mass index by 0.38 from baseline, but their weight loss was not simply a function of the increase in steps walked every day. “This suggests that participation in the intervention either increased activity or was not measured by the pedometer or resulted in decreased caloric consumption, or both,” the researchers noted.

Pedometer users also significantly decreased their systolic blood pressure by nearly 4 mm Hg from baseline, which is notable because most were normotensive. This reduction in blood pressure seemed to be independent of decreases in BMI, again suggesting that use of the device entails benefits not measured by step count alone, they said, adding it is not known if these improvements are sustained long term.

Women with a so-called empty calorie diet—high in sweetened beverages, red meat, and desserts—had significantly elevated intima-media thickness, compared with women who followed other dietary patterns, including those high in fat.

The finding comes from an analysis of the Framingham Heart Offspring/Spouse Study that was presented during a poster session at the annual scientific sessions of the American Heart Association.

Any diet that consists of regular intake of a lot of fatty food, a lot of sugary food including sugary drinks, and not a lot of low-fat dairy, fruits, or vegetables is probably setting a woman up for cardiovascular problems, said study author Lisa S. Brown, in an interview.

Ms. Brown and her associates analyzed data from 1,278 women with a mean age of 58 years who participated in the Framingham Offspring/Spouse Study and who completed the Framingham food frequency questionnaire during 1984-1988, underwent intima-media thickness measurement via ultrasound at exam 6 (1996-1998), and were free of cardiovascular disease at exam 6.

“A lot of intima-media thickness and diet work has looked at specific nutrients—especially antinutrients and different types of fats,” noted Ms. Brown, a registered dietitian who is a doctoral candidate in medical nutrition sciences at Boston University. “None have looked at diet in such a comprehensive manner.” Based on how the women responded to validated Framingham food frequency questionnaire, the researchers placed them into one of five dietary patterns.

“Heart healthy. The 450 women in this group eat more fruits and vegetables than women in the other groups. ‘We think this is a group that changed their diet some time in their adult life and that they make an effort to be health conscious,’” she said.

Women in the empty calorie group had maximum carotid intima-media thickness of 1.46 mm, which was significantly higher than that of women in the heart healthy group (1.18 mm), light eating group (1.22 mm), and high fat group (1.17 mm). This relationship remained significant even after controlling for risk factors.

“We suspect that...intima-media thickness is a really good indicator of lifetime exposure to all the things that cause heart disease risk including poor diet, high blood pressure, high cholesterol, smoking, and physical inactivity,” Ms. Brown said.

DASH Diet Shown to Lower Risk of CHD, Stroke in Women

BY DOUG BRUNK  San Diego Bureau

Women who followed the Dietary Approaches to Stop Hypertension diet had significant risk reductions of coronary heart disease and stroke, results from a cohort of participants in the ongoing Nurses’ Health Study showed.

Previous studies have shown that the diet—heavy in fruits and vegetables—lowers blood pressure and blood lipids, but this marks the first time benefit on a disease state has been demonstrated.

Developed by researchers funded by the National Heart, Lung and Blood Institute in the 1980s, the Dietary Approaches to Stop Hypertension (DASH) diet is low in cholesterol and sodium and contains no more than 30% of calories from fat.

Teresa Fung, Sc.D., and associates, who presented the study at the annual scientific sessions of the American Heart Association, evaluated 88,415 women from the Nurses Health Study who were aged 34-59 years in 1980 and had no history of cardiovascular disease or diabetes. The researchers used a questionnaire to assess the women’s diet seven times over 24 years of follow-up and used medical records to tabulate their incidence of cardiovascular disease and stroke.

Patients were divided into quintiles on the basis of how closely they followed the diet, with quintiles being poorly followed (the bottom 20%) and quintile 5 being well followed (the top 20%). Cox proportional hazard analysis was used to adjust for potential confounders such as age, smoking, family history of coronary heart disease (CHD) and stroke, and level of physical activity.

Over the 24-year follow-up there were 1,876 cases of nonfatal myocardial infarction, 883 deaths due to coronary heart disease, and 2,317 strokes. The researchers observed significantly lower risks of CHD and stroke when they compared quintile 5 with quintile 1. (See box.)

“This is more evidence to promote the diet,” said Dr. Fung, associate professor of nutrition at Simmons College, Boston.

She said she was surprised that the magnitude of effect was greater for CHD than for stroke. The researchers also observed that the risk reduction for stroke was much stronger in women who had a history of hypertension at baseline, compared with those who did not. The study was funded by the National Institutes of Health.

**DASH-Type Diet Lowers Adjusted Relative Risk Of CHD and Stroke**

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<th>Diet quintile</th>
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<th>Stroke</th>
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Notes: Based on a 24-year follow-up of 88,415 women. Diet adherence was lowest in quintile 1 and highest in quintile 5.