Taking Steps to Reduce Risk of Metabolic Syndrome
New Study Shows That Steps per Day Associated with Cardiovascular Disease Factors

San Diego, CA, May 5, 2010 – Metabolic syndrome (MetS) is made up of unhealthy cardiovascular disease (CVD) risk factors including abdominal obesity, high levels of triglycerides, low level of HDL-cholesterol, elevated blood pressure, and elevated fasting glucose level as defined by the American Heart Association/ National Heart, Lung, and Blood Institute (AHA/NHLBI). According to the National Health and Nutrition Examination Survey (NHANES) 1999–2004, approximately 36% of the U.S. adult population has MetS. In a new study in the current issue of the American Journal of Preventive Medicine, researchers found that daily volume of physical activity is related to MetS.

Using data from the U.S. NHANES 2005–06, a team of investigators from the Pennington Biomedical Research Center, Baton Rouge, Louisiana, analyzed a total sample of 1446 subjects, 523 with MetS and 923 without MetS. These subjects wore high-quality accelerometers and their activity levels placed them into three step-defined physical activity categories: sedentary (<5000 steps/day), low-to-somewhat-active (5000–9999 steps/day) and active-to-highly-active (≥10000 steps/day).

“Even though public health recommendations focus primarily on the accumulation of time spent in moderate-to-vigorous physical activity, the total volume of physical activity as measured by steps/day was shown to be related to positive health outcomes,” lead investigator Peter T. Katzmarzyk, PhD, commented. “Adults who maintain an active lifestyle by accumulating more steps are likely to have a lower prevalence of MetS and its individual CVD risk factors. Although other concomitant lifestyle behaviors may influence this lower prevalence, the evidence presented here on steps/day and metabolic syndrome, and elsewhere on physical activity and other health and disease states, suggest that it is a fundamental component of daily living.”
Compared to the sedentary group, odds of having MetS were lower for each higher category of daily steps. In the total sample, the odds of having MetS were 40% lower for the “low-to-somewhat-active” and 72% lower for the “active-to-highly-active” groups compared to the sedentary group. Among men, the odds of MetS were 24% lower in the “low-to-somewhat-active,” although not significant, and it was 69% lower in those categorized in the “active-to-highly-active” compared to the sedentary group. For the women, those categorized as “low-to-somewhat-active” had 53% lower odds and those in the “active-to highly-active” group had 72% lower odds of having MetS compared to the sedentary group.

Higher levels of steps/day were associated with significantly lower odds of having at-risk CVD profiles for the total sample, and also separately for men, and women. In the total population, each additional 1000 steps/day was associated with an 8%–13% reduction in the odds of high waist circumference, a low level of HDL-cholesterol, and high levels of triglycerides. For men, each additional 1000 steps/day was associated with a 6%–11% reduction in odds of high waist circumference, a low level of HDL-cholesterol, and high levels of triglycerides. For women, each additional 1000 steps/day was associated with a 6%–17% reduction in the odds of high waist circumference, a low level of HDL-cholesterol, and high levels of triglycerides.

While cardiovascular health benefits of physical activity have been well documented in the literature, the current study supports and expands on these findings by including accelerometer-determined steps/day, an objective measure of the total volume of daily ambulatory physical activity, in a representative sample of U.S. adults. Capturing total volume of physical activity in steps/day is important since it considers all domains (transportation, recreation, household, and occupation) and provides an objective measure rather than relying on self-reported, which can often be biased.

The article is “Accelerometer-Determined Steps/Day and Metabolic Syndrome” by Susan B. Sisson, PhD, Sarah M. Camhi, PhD, Timothy S. Church, MD, MPH, PhD, Catrine Tudor-Locke, PhD, William D. Johnson, PhD, and Peter T. Katzmarzyk, PhD. It appears in the American Journal of Preventive Medicine, Volume 38, Issue 6 (June 2010) published by Elsevier.

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Full text of the article is available to journalists upon request; contact eAJPM@ucsd.edu. To schedule an interview with the authors, please contact Peter T. Katzmarzyk, PhD, FACSM, Associate Executive Director for Population Science, Professor and Louisiana Public Facilities Authority Endowed Chair, Pennington Biomedical Research Center, at 225-763-2536 or Peter.Katzmarzyk@pbrc.edu.
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