

Who's the fittest? You may be surprised

May 4 2010, by Allie Nicodemo

(PhysOrg.com) -- When it comes to making health a priority, Americans are missing the mark. The National Institutes of Health estimate that more than two-thirds of the United States population is overweight or obese, and nearly half do not get enough physical activity. The result is a major increase in the prevalence of heart disease, diabetes, cancer and other health complications.

Childhood obesity also is on the rise, suggesting that kids may not be learning to make healthy lifestyle choices at a young age.

Barbara Ainsworth, a professor in ASU's College of Nursing and Health Innovation, is working to determine which groups are the least active and to identify the most effective ways to increase physical activity levels. In partnership with researchers at the University of Chicago, Ainsworth compared data from two different studies aimed at recording physical activity levels among Caucasians, African-Americans and Mexican-Americans. The government uses this information to help determine if Americans are meeting the goals of Healthy People 2010, a national initiative to reduce and prevent common [health disparities](#), such as cancer and obesity.

The first study relied on participants to self-report how often they performed moderate physical activity in a typical week. The results showed men reportedly being more active than women, Caucasians more active than African-Americans and Mexican-Americans, and that adults with higher levels of education had a tendency to be more physically

active. However, Ainsworth found that the second study, which collected data using a method called accelerometry, yielded very different results.

Accelerometry is a technique that measures physical activity through an electronic device called an accelerometer that participants wear around their waists.

“It’s a motion detector similar to a seismograph you would see for an earthquake,” Ainsworth said.

The device records a person’s movements and produces a visual representation of their physical activity, with the highest peaks corresponding to the fastest and most vigorous motions.

The accelerometry data revealed some disparities between self-reported and actual physical activity among Americans. For example, the study showed that Mexican-Americans came closest to meeting the national physical activity goals of Healthy People 2010, with 27 percent getting at least 30 minutes of moderate exercise five days a week, compared with 20 percent of Caucasians and 15 percent of African-Americans. Researchers say the disparity between the two studies can be partly attributed to the fact that Mexican-Americans often hold jobs requiring manual labor, which they may not report if asked about their daily leisure-time physical activity.

Ainsworth said the accelerometry study also challenged the belief that a higher level of education indicates more of a commitment to exercise.

“We were surprised to see that people with only a high school education were closer to meeting the Healthy People 2010 goals more than those with a college education,” Ainsworth said.

Researchers have been using accelerometers to measure physical activity

for about 10 years, Ainsworth said. The method is especially useful for recording occupational activity and the amount of time people spend traveling by foot, which are two areas that most leisure-time physical activity surveys don't cover. However, Ainsworth points out that accelerometry is limited in the type of motion it can detect. As technology advances, researchers hope to develop an accelerometer that can be worn under water to measure exercise people get through swimming.

Despite the limitations, accelerometry is an important tool in the fight against obesity, which the Centers for Disease Control and Prevention ranked as the number one health risk facing America. Ainsworth said that in addition to dietary intake and community dynamics, physical activity is one of the most essential components of maintaining a healthy weight and lifestyle.

“It is important to identify groups that are not achieving [physical activity](#) goals so intervention strategies can be implemented,” Ainsworth said. These strategies could include revamping physical education in schools and providing structural support for families to encourage more exercise.

Provided by Arizona State University

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