Adherence to guidelines and obesity and overweight

Introduction

Regular physical activity is a key modifible lifestyle behavior to prevent and manage obesity6.7.

Recent evidence in epidemiological indicates that MSE may also be beneficial to the obesity prevention/management.

在美国和许多其他国家/地区，有关身体活动的人口数据是通过自我报告或代理报告 ( 28 ) 在国家健康调查中收集的。这些成年人口体力活动数据分为*无休闲时间体力活动*、*部分体力活动*和*满足推荐水平的足够体力活动，*每类占 20-40% ( 28 )。身体活动的自我报告存在显着的报告偏差 ( 20 )，这是由于社会期望偏差和与估计成人，尤其是儿童的身体活动的频率和持续时间相关的认知挑战的结合 (8 ). 此外，人口调查在用于评估特定行为的问题数量方面受到限制。客观测量设备，例如测量步数的计步器和测量运动强度的加速度计，为自我报告数据的问题提供了潜在的解决方案 (1,27 )。这些设备体积小，可以存储多天的数据，并且越来越可靠和负担得起。

In the United States and many other countries, population data on physical activity are collected in national health surveys through self- or proxy-reports (28). These adult population physical activity data are categorized into *no leisure-time physical activity*, *some physical activity*, and *sufficient physical activity to meet recommended levels,* with 20-40% in each category (28). Self-report of physical activity suffers from significant reporting bias (20) attributable to a combination of social desirability bias and the cognitive challenge associated with estimating frequency and duration of physical activity for adults and, especially, children (8). Furthermore, population surveys are limited in the number of questions used to assess a specific behavior. Objective measurement devices such as pedometers, which measure steps, and accelerometers, which measure movement intensity, offer a potential solution to problems with self-reported data (1,27). These devices are small, can store data for multiple days, and are increasingly reliable and affordable.

**Method**.

**Population**

After removing those with incomplete data and pregnant participants

due to the use of waist circumference (n = 2113)

Physical activity

Aerobic physical activity was measured in 3 ways:

(i) via self-report as minutes of MVPA/week; and via an accelerometer as

(ii) minutes of MVPA/day and (iii) number of steps/day.

首先确定客观测量PA的年份

2003-2004

2005-2006

Accelerometer Data from NHANES 2011-2014

**Accelerometer-Assessed PA**

**基于加速度计的设备在 2011-2012 和 2013-2014 周期返回到 NHANES。然而，所使用的设备和协议都与早期的 NHANES 不同。使用了 Actigraph，但当时的型号 (GT3X+) 是防水的，支持以 80Hz 连续收集 7 天的三轴加速度计原始信号数据。没有重复 2003-2006 年使用的腰部位置，而是选择了非惯用手腕上的手腕佩戴。将防水设备戴在手腕上可以让该设备全天候佩戴 7 天。选择这种身体位置和协议是为了提高佩戴依从性，并具有允许在睡眠期间测量运动的额外好处。手腕活动记录仪是一种经过充分验证的睡眠持续时间和质量测量方法。[ 21] 然而，对于 PA 监测，惯用手腕与非惯用手腕的使用仍然是一个悬而未决的问题。为当前 NHANES 协议选择非主导手腕是基于睡眠研究的历史先例和手腕设备校准结果的早期报告，[ 15 ] 并且不应被视为基于 24 小时加速度计的标准PA协议。在这一点上，早期手腕加速度计校准研究似乎并不强烈支持右手腕与左手腕（或主导手腕与非主导手腕）进行身体活动监测。[ 14 – 16 ]**

**Participation in MSA**

**Participation in the MSA. individuals self-reported their participation in the MSA by answering two questions:(1) "In the past 30 days, did you do any physical activity specifically designed to strengthen your muscles, such as weights, push-ups, or sit-ups?" . Then ask those who answered "yes," and (2) "In the past 30 days, how many times have you done activities designed to strengthen muscles, such as weight lifting, push-ups, or sit-ups? People who reported doing MSA for at least 8 days in the past 30 days were considered to meet MSA guidelines here, as this meets the American College of Sports Medicine guidelines for resistance training 2 or 3 days per week.**

**2.3.2 Obesity.**

**Body composition was captured via Dual-energy X-ray absorptiometry (DXA) (Hologic), and body fat % was estimated. Details of the DXA protocol are available on the NHANES website.19 Based on the WHO definition, men having ≥ 25% and women having ≥35% body fat were classified as living with obesity.20 Body mass index (BMI) was calculated following standardized procedures; weight (kg) divided by height (m) squared.21**

**Covariates included age, sex, race/ethnicity, smoking status (serum cotinine levels for males .1.78 ng/mL, females .4.47 ng/mL), povertyto-income ratio. Statistical significance was established as p .05.**

**Statistical analysis**

Other covariates included gender, age, income, education level, BMI, and the number of chronic diseases. To assess chronic conditions, participants were asked if they had ever been told by a doctor or other health professional if they had any of the following conditions: arthritis, coronary heart disease, stroke, congestive heart failure, myocardial infarction, emphysema, chronic bronchitis, asthma, or cancer. By answering "Yes" to any of the above conditions, a binary variable (yes/no) for "any chronic disease" was derived.