Reliability and validity of the 7-day Physical Activity Recall interview in a Spanish population

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Abstract
The aim of this study was to assess the reliability and convergent validity of the 7-day Physical Activity Recall (7-day PAR) interview in a sample of the Spanish population. Valid 7-day PAR interviews were conducted and RT3 accelerometer measurements taken for 160 subjects from the primary care population aged 24–83, 75 men and 85 women. Two 7-day PAR interviews were conducted, with a one-week interval, with 147 of these participants. Test–retest reliability was assessed using intraclass correlation coefficients. Convergent validity between the 7-day PAR and the accelerometer data were examined using Spearman’s correlation coefficients, and the kappa index of agreement was calculated. The 7-day PAR reliability coefficients were 0.68 (95%CI: 0.58–0.76) for total energy expenditure, 0.65 (95%CI: 0.54–0.73) for the activity dose, and 0.61 (95%CI: 0.50–0.70) and 0.75 (95%CI: 0.67–0.81) for time spent on moderate and vigorous-intensity activity, respectively. These coefficients ranged from 0.91 to 0.96 in participants who reported a typical week in both interviews. Convergent validity ranged from 0.25 for time spent on vigorous activity to 0.52 for the activity dose, and the kappa index was 0.43 (95%CI: 0.30–0.56). Reliability and convergent validity coefficients in the Spanish population were generally moderate and similar to those found in other studies.

Keywords: Measurement, self-report, activity monitor, validation

Background
It is important to be able to conduct accurate evaluations of physical activity (Prince et al., 2008). Physical activity is defined as the behaviour that results in ‘any bodily movement produced by skeletal muscles that results in energy expenditure’ (Caspersen, 1985), and it includes all large muscle movement, for whatever purpose, carried out throughout the day (Bauman, Phongsavan, Schoeppe, & Owen, 2006).

In practice, activity levels are often measured as an outcome, assessing programs to promote physical activity, or as an exposure, examining how physical activity influences multiple aspects of health, quality of life, incidence of diseases or mortality. Ideally, physical activity should be measured with direct instruments, where all possible errors are controlled and where the energy expenditure (EE) is accurately determined, for example, by the doubly-labelled water technique (DLW), which can be considered the gold standard for measuring EE in free-living conditions (Melanson, Freedson & Blair, 1996). Data collection on physical activity at the population level, however, requires instruments that are easy to use and low cost, as well as being generally acceptable and convenient for the participant (Dishman, Washburn, & Schoeller, 2001). Self-report measures such as questionnaires, diaries, surveys and interviews have these characteristics.

The 7-day Physical Activity Recall (7-day PAR) interview can be conducted in person or by telephone

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