

How to Assess Physical Activity in Clinical Practice and for Scholarly Work

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ABSTRACT

Nurse practitioners can assess their patients' physical activity levels using questionnaires, pedometers, and accelerometers. Questionnaires can be used as a vital sign during clinic visits to categorize patients as meeting national physical recommendations and/or to identify the time per week patients engage in health-enhancing physical activity levels. Alternatively, pedometers and accelerometers can be used by nurse practitioners to monitor patients' progress in meeting recommended physical activity guidelines and/or to suggest a way for patients to monitor their own physical activity behaviors. These measures can also be used to measure physical activity in research and other scholarly work.

Keywords: accelerometer, Exercise Vital Sign, pedometer, physical activity vital sign, questionnaire

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Because physical activity is a health-enhancing behavior, nurse practitioners (NPs) are encouraged to identify physical activity profiles of their patients and/or to recommend regular physical activity as a way to improve health status. In addition to assessing physical activity as a clinician, NPs also measure physical activity for scholarly endeavors related to work, doctor of nursing practice projects, and dissertation studies. In 1995, adults were encouraged to engage in 30 minutes of moderate-intensity physical activity for most days of the week to improve their health.¹ In 2008, physical activity guidelines were updated to recommend adults accumulate at least 150 minutes per week in moderate-intensity physical activity or 75 minutes per week in vigorous-intensity physical activity or a combination of the 2 intensities.² In order to be most beneficial, moderate- to vigorous-intensity physical activity needs to be obtained in a minimum of 10-minute bouts. The guidelines also recommended adults engage in strength training at least 2 days per week and avoid sedentary behaviors. Although sedentary behavior is important, the focus of this article is on light, moderate, and vigorous physical activity measurement. Physical activity includes exercise that is structured as well as lifestyle

physical activity obtained through leisure time, transportation, and occupational activities. Physical activity can be measured subjectively, which is by patient self-report. Physical activity can also be measured objectively by using equipment that tracks movement. There are many variables that affect physical activity. The purpose of this article is to specifically provide an overview of several subjective and objective physical activity and exercise measures that NPs can use in clinical practice as well as in their scholarly work.

MEASURING PHYSICAL ACTIVITY

Physical activity is measured as the frequency (time per week), duration (time in minutes or hours), type (walking, swimming, or gardening), and intensity of physical activities performed. The intensity is expressed as metabolic equivalents (METs), which is the energy cost of an activity divided by the energy cost at rest (1 MET), often described as sitting quietly in a chair. MET values range in intensity as sedentary (1.0-1.5 METs), light (1.6-2.9 METs), moderate (3.0-5.9 METs), and vigorous (≥ 6.0 METs). [Table 1](#) provides an example of MET values for selected activities and intensity categories.³

Table 1. Example of Metabolic Equivalent (MET) Values for Selected Physical Activities and an Identification of Intensity Categories for Physical Activity Recommendations^{5,25}

METs	Activity	METs	Activity
0.9	Sleeping	5.5	Carrying, loading, stacking wood
1.0	Sitting or reclining quietly	6.0	Mowing lawn with hand mower
1.5	Standing; reclining with a baby	6.5	Hiking with a day pack; race walking
2.0	Mild yoga; stretching; hair stylist;	7.0	Jogging; backpacking; soccer
2.5	Driving car; billiards; mopping	7.5	Shovel snow; health club exercises
3.0	Walking slowly; bowling; Frisbee	8.0	Basketball; circuit exercise training
3.5	Walking for pleasure; golf with cart;	8.5	Running 6 mph; mountain bicycling
4.0	Walking briskly; power yoga; canoeing	9.0	Cross-country skiing; bicycle 12 mph
4.5	Folk dancing; lifting items 10-20 lbs.	9.5	Running 11 min/mile
5.0	Low impact aerobic dance; walk/run	10.0	Swimming fast; running 10 min/mile

HOW CAN NPs MEASURE THEIR PATIENTS' PHYSICAL ACTIVITY?

Several methods that NPs can use to determine physical activity levels are reviewed here (Table 2). A comprehensive review of physical activity assessment methods is provided by a scientific statement from the American Heart Association (<http://circ.aha.org/content/early/2013/10/14/01.cir.0000435708.67487.da.full.pdf+html>).⁴

Subjectively, 1 way to identify a patient's physical activity is to administer a questionnaire when the patient's vital signs are measured. Patient's physical activity levels can also be measured using physical

activity records and logs. With subjective measures, results are dependent on patient recall. Objectively, patients can wear a pedometer or accelerometer to help them monitor their own physical activity, which we will describe in detail.

SUBJECTIVE MEASURES

Questionnaires

Questionnaires are used most frequently to obtain a self-report of one's participation in different types of physical activity and are classified into 1 of 3 categories.

Global Questionnaires. Global questionnaires have very few items and provide a general impression

Table 2. Usefulness of Physical Activity Measurement Methods for Use in Clinical Settings^{4,5}

Methods	Low Clinic Cost	Low Burden to User	Ranks Low/High PA	Simple Scoring Method	Recall Keeping Bias	Personal Activity Tracking	Feasible for Clinic Use
Global	x	x	x	x	x	x	x
Short recall	x	x	x	x	x	x	x
Quantitative recall	x		x		x		
Records	x		x		x	x	
Logs	x		x	x	x	x	
Monitors							
Pedometers		x	x	x		x	x
Accelerometers		x	x	x		x	x
Multisensors		x	x	x		x	

x = recommended use.

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