HHS Public Access

Author manuscript

J Phys Act Health. Author manuscript; available in PMC 2015 September 15.

Published in final edited form as:

J Phys Act Health. 2014 May ; 11(4): 853–859. doi:10.1123/jpah.2012-0264.

Validity and Reliability of the Self-Reported Physical Fitness (SRFit) Survey

NiCole R. Keith,

Dept of Kinesiology, the Indiana University Center for Aging Research and Regenstrief Institute

Daniel O. Clark,

Division of General and Internal Medicine and Geriatrics, Indiana University School of Medicine, Indianapolis, IN

Timothy E. Stump,

Division of Biostatistics, Indiana University School of Medicine, Indianapolis, IN

Douglas K. Miller, and

Division of General and Internal Medicine and Geriatrics, Indiana University School of Medicine, Indianapolis, IN

Christopher M. Callahan

Division of General and Internal Medicine and Geriatrics, Indiana University School of Medicine, Indianapolis, IN

Abstract

Background—An accurate physical fitness survey could be useful in research and clinical care.

Purpose—To estimate the validity and reliability of a Self-Reported Fitness (SRFit) survey; an instrument that estimates muscular fitness, flexibility, cardiovascular endurance, BMI, and body composition (BC) in adults ≥ 40 years of age.

Methods—201 participants completed the SF-36 Physical Function Subscale, International Physical Activity Questionnaire (IPAQ), Older Adults' Desire for Physical Competence Scale (Rejeski), the SRFit survey, and the Rikli and Jones Senior Fitness Test. BC, height and weight were measured. SRFit survey items described BC, BMI, and Senior Fitness Test movements. Correlations between the Senior Fitness Test and the SRFit survey assessed concurrent validity. Cronbach's Alpha measured internal consistency within each SRFit domain. SRFit domain scores were compared with SF-36, IPAQ, and Rejeski survey scores to assess construct validity. Intraclass correlations evaluated test-retest reliability.

Results—Correlations between SRFit and the Senior Fitness Test domains ranged from 0.35 to 0.79. Cronbach's Alpha scores were .75 to .85. Correlations between SRFit and other survey scores were −0.23 to 0.72 and in the expected direction. Intraclass correlation coefficients were 0.79 to 0.93. All *P*-values were 0.001.

Conclusion—Initial evaluation supports the SRFit survey's validity and reliability.

Keywords

health; aging; measurement

The importance of having accurate measures to assess physical activity and physical fitness (a set of attributes related to physical activity) has been described for decades. In 1986, Wilson et al[1] published proceedings from a National Heart, Lung, and Blood Institute workshop that examined the precision of such measures. The authors recommended the identification of an instrument that "represents reality without distorting the subject's usual activity." In 1992 Haskell et al[2] recommended obtaining valid and reliable measures of variables related to physical fitness but cautioned that requirements (eg, time, cost, expertise) related to such assessments would limit implementation on a large scale.

There also is tremendous support for fitness assessments and counseling patients about physical fitness and physical activity within primary care settings. Wilder et al[3] recommended integrating a physical fitness assessment that included all domains into a primary care visit to measure and promote health. Sallis has described a clear need to integrate the fitness and health care industries by making exercise a vital sign to achieve or maintain good health.[4] The Institute of Medicine (IOM) recommends health care providers perform routine behavior assessments to improve patient and general community health.[5] Recommendations to assess physical activity participation and physical fitness outcomes across populations and within patient care settings have become well established.

Physical fitness is an outcome of exercise and physical fitness tests may reveal a need for health behavior change to slow or reverse potential illness and/or losses in physical function. Thus, similar to other secondary prevention measures (eg, blood pressure checks) regular assessment of physical fitness may be warranted. Many people, however, have difficulty performing self-administered physical fitness tests and/or accessing the expertise or equipment necessary to measure overall physical fitness.[6,7] A valid, self-report physical fitness survey could address this problem.

There are five domains of health-related fitness; muscular strength, muscular endurance, cardiorespiratory endurance, flexibility, and body composition.[8] The Self-Reported Fitness (SRFit—pronounced senior fit) survey was developed to measure physical fitness across all health-related fitness domains in adults aged 40 years and older. The SRFit 22-item survey included upper-body strength and endurance (UBS; 3 items), lower-body strength and endurance (LBS; 3 items), upper-body flexibility (UBF; 6 items), lower-body flexibility (LBF; 4 items), cardiovascular fitness (CVF; 3 items), and body composition (BC; 3 items) items. The possible summary score ranges for each domain were: UBS (0–15), LBS (0–15), UBF (0–30), LBF (0–20), CVF (0–15), and BC (0–15). A higher score indicated a higher level of fitness. Details of the development and scoring of the 22 item SRFit survey can be found elsewhere.[9] Concurrent validity of SRFit survey fitness domain scores were checked against measures on the Senior Fitness Test battery and BodPod for body composition and were found to be good to excellent. Thus, initial evaluation of the SRFit survey indicated that participants' self-reported physical fitness was consistent with their measured physical fitness. To our knowledge, this is the only survey that has the sole focus of capturing all five domains of health-related physical fitness.[9]

In this report, we seek to further evaluate SRFit reliability and validity. Morey et al[10] presented a conceptual model that introduced individual components of health related fitness as direct indicators of functional status and risk of disability onset. More recently, Pettee Gabriel et al described a framework where the health-related components of physical fitness were a result of the complex and multidimensional behaviors related to physical activity (eg, leisure, occupational, self-care, transportation) and sedentary behavior.[11] In the context of these models, a conceptually valid measure of fitness would be expected to correlate positively with physical function. In addition, based on decades of prior research, a valid physical fitness measure should correlate positively with habitual physical activity levels and we hypothesized that the desire for physical competence would correlate positively with physical fitness. The purpose of this research is to (1) conduct a continued examination of the internal consistency and concurrent validity of the SRFit survey; (2) calculate SRFit intraclass correlations (ICC); and (3) evaluate construct validity of the SRFit survey relative to physical activity, physical function, and the desire for physical competence in a sample of 201 adults.

Methods

Participant Characteristics

This study was approved by the Indiana University (IU) Institutional Review Board. All 201 participants were aged 40 years or over and expressed interest in learning more about their health and fitness. Participant descriptive data are shown in Table 1. Participant recruitment occurred at urban primary care community health centers (CHC) and an urban commercial fitness center. CHC study participants were recruited by the IU Research Network (ResNet) recruiters who worked in the CHCs. Other participants had existing memberships to a commercial fitness center and were invited to participate in the study by a letter mailed to their homes or by a flyer posted in the fitness center locker rooms. This fitness center also served as the testing site. Informed consent was obtained from eligible participants, who received a $50 cash incentive upon completion of their testing.

To be eligible, participants had to self-report that they could a) walk without assistance, b) independently move from standing to sitting on a chair and back up, c) move elbow and wrist joints within a normal range of motion, d) speak English, and e) access and use a telephone. Exclusion criteria were a) 5 or more errors on the Short-Portable Mental Status Questionnaire (SPMSQ) indicating moderate to severe cognitive impairment,[12] and b) primary care physician refused permission to enroll in the study due to terminal illness (not expected to live beyond 1 year) and/or American College of Sports Medicine absolute contraindications to exercise (eg, Class D: Unstable Disease with Activity Restriction).[13]

Study Design

This cross-sectional study was developed to address the importance of fitness within the conceptual model presented by Morey et al.[10] In addition to the SPMSQ at screening, four survey scales were administered including the Short-Form 36 (SF-36) Physical Function Subscale, the International Physical Activity Questionnaire (IPAQ), the Older Adults' Desire for Physical Competence scale, and the SRFit survey. We also captured sociodemographic information. Participants' survey data, resting heart rate, resting blood pressure, height, weight, and body composition were measured before the completion of the BodPod measurement and the Rikli and Jones Senior Fitness Test.[14]

Additional Survey Measures

The SF-36 Physical Function Subscale was developed from the General Health Survey of the Medical Outcomes Study.[15] It is used to measure a person's perceived limitations in physical function. This subscale includes items related to physical activity, basic mobility, and activities of daily living. Scores for this subscale can range from 0–100 and a higher score indicates better physical function.

The IPAQ was designed to estimate energy expenditure requirements for a variety of physical activities for large study groups or populations.[16] One MET-minute is used to estimate energy expenditure and is defined as the MET intensity multiplied by the minutes per week of activity. A MET is the approximate equivalent to the activity metabolic rate divided by the resting metabolic rate.[17] Twelve countries participated in the initial IPAQ evaluations and the instrument was shown to be a valid and reliable measure of physical activity during transportation, while at work, when completing household tasks, and during leisure time for adults aged 18–65 years old.[16,18–20] Test retest reliability ($\rho = 0.80$) and criterion validity ($\rho = 0.30$) were established.[21] The IPAQ scoring protocol used in the current study included the IPAQ low-intensity, moderate-intensity, and vigorous-intensity items.

The Older Adults' Desire for Physical Competence scale is a 16-item measure that is designed to evaluate how important mobility and instrumental activities of daily living are to the respondent. Older Adults' Desire for Physical Competence scale test-retest reliability was shown to be excellent ($r = .93$). Construct validity was determined in reference to the SF-36, social desirability, and life satisfaction scales. All correlations were in the expected direction. Scores from this scale can range from 0–64 and a higher score indicates a greater desire for physical competence.[22]

Physical Tests

Following consent and completion of all surveys, in the same private, quiet room, the participant remained silent and seated for an additional 5 minutes. Next, resting heart rate and resting blood pressure were measured using an A&D UA-767 Digital Blood Pressure Monitor and LifeSource large or regular adult automated blood pressure cuff (A&D Medical, San Jose, CA). Participant height was measured using a wall-mounted stadiometer (Seca, Birmingham, United Kingdom). Weight and body composition were measured using the BodPod scale and air displacement plethysmography system (Life Measurement Inc., Concord, CA).

In the Senior Fitness Test, upper body strength and endurance were evaluated using the Arm Curl Test. Participants were asked to use their dominant arm and complete as many arm curls as possible in 30 seconds. Men used and 8 lb dumbbell and women used a 5 lb dumbbell. Lower body strength and endurance were measured using the Chair Stand Test.

Participants were asked to sit on a hard surfaced chair and return to standing without using their arms or other items for assistance for as many times as possible in 30 seconds. Upper body flexibility was evaluated using the Left and Right Back Scratch Tests. The score represented one's ability to reach over and under opposite shoulders and touch or overlap the fingers of opposite hands (a negative number was the distance between fingers and a positive number was the amount fingers overlapped). Lower body flexibility was evaluated using the Chair Sit and Reach Test. The score was the distance one could bend at the waist and reach the fingers down one leg (a negative number was the distance between the middle fingers and the toes and a positive number was the distance the fingers exceeded the toes). Cardiovascular fitness was evaluated using the summary estimate of the distance walked (meters) during the Six Minute Walk Test. Participants were asked to walk as far and as fast as they could in 6 minutes. Participants walked on a flat, rubberized, indoor track. Participants performed most tests one time. Upper-body and lower-body flexibility tests had 2 trials and the better of the 2 scores was used. The physical measures took approximately 30 minutes to complete[14]. All tests were completed in the fitness center assessment room and on the indoor track. Complete details of the physical tests are reported elsewhere.[9]

Test-Retest Reliability

During initial consent, participants were informed that they may be asked to do a second SRFit survey within two weeks after the completion of the first. Fifty participants (25%) completed the SRFit survey and returned up to 14 days later to complete a second SRFit survey. The average time between the first and second survey was 8.24 days (range 4 to 14 days). Quota sampling was used to insure that the retest sample had participants who were men and women, Black and White race, and from both of the recruitment sites. The research assistant who delivered the survey in the first test delivered the survey to the same study participant in the second test. These data were used to determine intraclass correlations and participants were paid an additional $25 to complete the second measures.

Analyses

All data were analyzed using SAS/ST AT 9.2 User's Guide (Cary, NC: SAS Institute Inc., 2008). First, we describe the sample on the measures detailed above. Next, the Senior Fitness Tests and SRFit survey results were plotted and graphed to ensure normality of the continuous variables. Senior Fitness Test physical variables were normally distributed. Some SRFit survey items were negatively skewed.

Concurrent validity is demonstrated when a test correlates well with a measure that has been previously validated. Concurrent validity was assessed using Spearman's rank order correlations of the interval data in the physical tests and the categorical data in the surveys. Correlations were computed only between corresponding Senior Fitness Tests and SRFit survey items.

Internal consistency evaluates reliability and is present when the items in the survey are consistent and measure attributes of a single concept. Cronbach's alpha was used to determine the internal consistency of items within each SRFit fitness domain.

Construct validity is established when the measured information is associated with a measure of the same or a similar construct. SRFit domain scores were compared with SF-36, IPAQ, and Rejeski survey scores to assess construct validity. Spearman rank order correlations were used to assess construct validity. Summary scores in each SRFit domain were compared with total scores of the comparison measures.

Test-retest reliability should be indicated when the survey yields consistent results over duplicate test administrations, provided that observations remain stable. One-way model single-measure intraclass correlations were used to evaluate the test-retest reliability of each SRFit summary score.

Results

Sample Description

Forty-nine percent of the participants were female and 27% self-identified as non-Hispanic Black and 3% as “other”; all other self-identified as non-Hispanic White. Mean age was 54.0 ± 10.5 years and mean body mass index (BMI) was 30.2 ± 8.0 kg/m^2. Details of demographic data and physical test scores are presented in Table 1.

The SF-36 scores indicated that participants self-reported moderate to high physical functioning (78.37 ± 25.74). The mean score for the Older Adults’ Desire for Physical Competence scale was 44.59 ± 16.62 indicating that participants had a moderate to strong desire for physical competence. Twenty two percent of all participants reported being in the low IPAQ category (meaning they did not meet criteria for moderate or high categories), 13% reported being in the moderate category (meaning they performed 3 days of vigorous activity for at least 20 min/day, 5 days of moderate activity or walking for at least 30 min/day for at least 10 minutes at a time, or 5 days of any combination of activities achieving at least 600 MET/min/wk), and 65% reported being in the high category (at least 5 days of any combination of walking, moderate-intensity, or vigorous-intensity activities achieving at least 3000 MET/min/wk).[23]

Concurrent Validity and Internal Consistency

The associations between individual SRFit self-report survey items and the Senior Fitness Test are presented in Table 2. The associations ranged from 0.35 to 0.72 and all values were significant at the $P < .001$ level. Spearman Rank correlations between SRFit summary score items and corresponding Senior Fitness Test physical test values ranged from 0.50 to 0.79 and all values were significant at the $P < .001$ level. Cronbach’s alpha scores within each domain (see Table 2) were .81 (upper-body strength and endurance), .83 (lower-body strength and endurance), .77 (left upper-body flexibility), .75 (right upper-body flexibility), .84 (lower-body flexibility), .75 (cardiovascular endurance), and .85 (body composition) which indicated acceptable to excellent internal consistency among items within each domain.

Construct Validity

Spearman correlations between SRFit domain summary scores and the overall scores for the SF-36, IPAQ, and Older Adults' Desire for Physical Competence scale are presented in Table 3. As expected, SRFit domains other than body composition were positively correlated with other survey measures and the SRFit survey body composition domain negatively correlated with other survey measures. Correlations between the SRFit survey and the SF-36 and correlations between the SRFit survey and the Older Adults' Desire for Physical Competence scale were higher in each fitness domain than were correlations between the SRFit survey and the IPAQ. Generally, however, correlations were in the moderate range (0.28 to 0.72) with the exception of the body composition domain which had correlations more toward the low range (−0.23 to −0.29). Correlations were in the anticipated direction and demonstrated construct validity.

Test-Retest Reliability

ICC results for the SRFit domains are also presented in Table 3. ICC values ranged from 0.79 to 0.93 for the summary scores of each of the five fitness domains indicating acceptable test-retest reliability.

Discussion

This study compared the SRFit survey with other existing survey instruments expected to correlate with physical fitness based on published models. Consistent with our publication of survey development,[9] the internal consistency and concurrent validity of the survey remained acceptable to excellent in this larger sample of physically and socioeconomically diverse participants. Correlations between all physical tests and summary scores from the corresponding SRFit domain either improved or remained excellent when compared with the previous research using the SRFit survey.

Construct validity was as hypothesized. Correlations were modest and positive between SRFit domains and each of the major constructs of the Morey fitness and disability model[10] and the physiological attributes described in the Pettee Gabriel framework for physical activity.[11] Included in these models are cardiorespiratory fitness, morphological factors (body composition), motor ability, muscular performance (strength, endurance, and flexibility), and multiple behaviors related to physical activity. Most are constructs measured by SRFit and all are factors included in the SF-36 and the Older Adults' Desire for Physical Competence scale. Both measures correlate with SRFit. These constructs are not part of the IPAQ which may explain why correlations between the SRFit survey and the IPAQ were lower. Test-retest results for the SRFit survey were excellent. To our knowledge the SRFit survey is the only survey that measures all health-related fitness domains.

Primary care is the site where health care is coordinated for most people.[24] The primary care provider is influential in patient lifestyle choices including the decision to achieve or maintain physical fitness. While the Rikli and Jones Senior Fitness Test was developed to assess physical fitness outside of laboratory settings (eg, health care clinics, community centers, or fitness centers), it requires delivery from someone who is trained to administer the test. Space and equipment to perform the tests also are required. All SRFit study participants completed the survey in less than ten minutes without the additional need of space or equipment for fitness assessments. The SRFit survey may be a useful alternative when such resources are unavailable. Some patients and primary care providers may equate fitness with cardiovascular fitness only. The SRFit survey would provide a prompt to realize fitness is comprised of multiple other, important domains. In the primary care setting, the SRFit survey could allow the health care provider to meet the IOM's recommendation of regular assessments[5] while giving patients tailored information regarding fitness.

Limitations

The eligibility criteria required participants to self-report they were able to stand up from a chair and return to a seated position without assistance and that they had normal range of motion in the wrist and elbow joints. Chair Stand Test values ranged from 0 to 36 and Arm Curl test values ranged from 0 to 29 indicating that one participant was unable to do these movements at the time of the test. In a sensitivity analysis results were nearly identical indicating that correlations were not driven by low values. All values are included in our analyses because it gives a true representation of our sample's physical diversity.

While the battery of physical tests contained in the Senior Fitness Test have been validated with gold standard physical fitness measures,[14] the Senior Fitness Test is not a true gold standard measure. With the exception of the BodPod measurement for percent body fat, measurement of criterion validity in this way was beyond the scope of this cross-sectional study. Establishment of criterion validity will be important in future studies.

The current study demonstrates SRFit survey reliability as well as construct and concurrent validity. Initial work with the survey suggests it is a useful tool to evaluate current health-related fitness levels among moderately to low fit individuals who are 40 years of age or older. However, 201 is a modest sample size and the survey may not be appropriate for people who are younger or are in higher fitness categories. A larger sample would be necessary to identify differences among subgroups. Furthermore, participants were recruited from a single urban U.S. location and English language proficiency was a requirement of participation.

Conclusions

The SRFit survey requires 10 minutes or less to complete and shows internal consistency and test-retest reliability. SRFit survey items show validity in reference to all physical fitness measures and in reference to surveys of theoretically related constructs. Future work will involve comparisons between subgroups (eg, race, age, and sex) and evaluating the survey's predictive validity in terms of health outcomes and health services use.

Physical fitness is an important indicator of overall health. Achieving or maintaining physical fitness levels also reduces the development of several comorbid conditions as well as all-cause mortality.[25,26] For decades there has been a need to identify accurate and reliable, yet inexpensive measures of physical fitness for population-based research. More recently, it has been recommended that primary care providers assess physical fitness as part of a regular office visit to improve patient participation in exercise programs and positively influence their physical fitness and overall health.[27,28] There is support in the literature for continued use of self-report instruments to inform research related to the influence of physical activity on health.[29] An inexpensive tool that is easy to administer and takes little time to complete would be useful for provider assessment of physical fitness (a major outcome of physical activity). The SRFit survey is a simple and inexpensive tool that could be used in clinical care as well as in physical fitness research.

Acknowledgments

This work was supported by Award Number K01HL096423 from the National Heart, Lung, and Blood Institute and P30 AG024967 from the National Institute on Aging. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Heart, Lung, And Blood Institute or the National Institute on Aging.

References

1. Wilson PWF, Paffenbarger RS, Morris JN, Havlik RJ. Assessment methods for physical activity and physical fitness in population studies: report of a NHLBI workshop. Am Heart J. 1986; 111(6): 1177–1192. doi:10.1016/0002-8703(86)90022-0. [PubMed: 3716991]
2. Haskell WL, Leon AS, Caspersen CJ, et al. Cardiovascular benefits and assessment of physical activity and physical fitness in adults. Med Sci Sports Exerc. 1992; 24(6 Suppl):S201–S220. doi: 10.1249/00005768-199206001-00004. [PubMed: 1625547]
3. Wilder RP, Greene JA, Winters KL, Long W 3rd, Gubler K, Edlich RF. Physical fitness assessment: an update. J Long Term Eff Med Implants. 2006; 16(2):193–204. doi:10.1615/JLongTermEffMedImplants.v16.i2.90. [PubMed: 16700660]
4. Sallis RE. Exercise is medicine and physicians need to prescribe it! Med Sport (Roma). 2009; 62(4): 517–520.
5. Academies IoMotN. Accelerating Progress in Obesity Prevention; Solving the Weight of the Nation. Advising the Nation Improving Health. 2012 http://www.iom.edu/Reports/2012/Accelerating-Progress-in-Obesity-Prevention.aspx. 2012.
6. Cheng YJ, Macera CA, Addy CL, Sy FS, Wieland D, Blair SN. Effects of physical activity on exercise tests and respiratory function. Br J Sports Med. 2003; 37(6):521–528. doi:10.1136/bjsm.37.6.521. [PubMed: 14665592]
7. Teri L, McCurry SM, Logsdon RG, Gibbons LE, Buchner DM, Larson EB. A randomized controlled clinical trial of the Seattle Protocol for Activity in older adults. J Am Geriatr Soc. 2011; 59(7):1188–1196. [PubMed: 21718259]
8. Pate RR. The evolving definition of physical fitness. Quest. 1988; 40(3):174–179. doi: 10.1080/00336297.1988.10483898.
9. Keith NR, Stump TE, Clark DO. Developing a self-reported fitness survey. Med Sci Sports Exerc. 2012; 44(7):1388–1394. [PubMed: 22297807]
10. Morey MC, Pieper CF, Cornoni-Huntley J. Physical fitness and functional limitations in community-dwelling older adults. Med Sci Sports Exerc. 1998; 30(5):715–723. doi: 10.1097/00005768-199805000-00012. [PubMed: 9588614]
11. Pettee Gabriel KK, Morrow JR Jr, Woolsey AL. Framework for physical activity as a complex and multidimensional behavior. J Phys Act Health. 2012; 9(Suppl 1):S11–S18. [PubMed: 22287443]
12. Pfeiffer E. A short portable mental status questionnaire for the assessment of organic brain deficit in elderly patients. J Am Geriatr Soc. 1975; 23(10):433–441. [PubMed: 1159263]
13. Franklin BA, Whaley MH, Howley ET. ACSM's Guidelines for Exercise Testing and Prescription, 6th ed. Nutrition in Clinical Care. 2001; 4(1):1.
14. Rikli, RE.; Jones, C. Senior Fitness Test Manual. Champaign, IL: Human Kinetics; 2000. p. 1-106.
15. Stewart AL, Hays RD, Ware JE. The MOS short-form general health survey: reliability and validity in a patient population. Med Care. 1988; 26(7):724–735. doi: 10.1097/00005650-198807000-00007. [PubMed: 3393032]

16. Craig CL, Marshall AL, Sjostrom M, et al. International physical activity questionnaire: 12-country reliability and validity. Med Sci Sports Exerc. 2003; 35(8):1381–1395. doi:101249/01.MSS.0000078924.61453.FB. [PubMed: 12900694]
17. Strath SJ, Bassett DR Jr, Ham SA, Swartz ANNM. Assessment of physical activity by telephone interview versus objective monitoring. Med Sci Sports Exerc. 2003; 35(12):2112–2118. doi:10.1249/01.MSS.0000099091.38917.76. [PubMed: 14652510]
18. Hagströmer M, Oja P, Sjostrom M. The International Physical Activity Questionnaire (IPAQ): a study of concurrent and construct validity. Public Health Nutr. 2006; 9(6):755–762. doi:10.1079/PHN2005898. [PubMed: 16925881]
19. Papathanasiou G, Georgoudis G, Georgakopoulos D, Katsouras C, Kalfakakou V, Evangelou A. Criterion-related validity of the short International Physical Activity Questionnaire against exercise capacity in young adults. Eur J Cardiovasc Prev Rehabil. 2010; 17(4):380–386. doi:10.1097/HJR.0b013e328333ede6. [PubMed: 19940775]
20. Bauman A, Bull F, Chey T, et al. The International Prevalence Study on Physical Activity: results from 20 countries. Int J Behav Nutr Phys Act. 2009; 6(1):21. doi:10.1186/1479-5868-6-21. [PubMed: 19335883]
21. Craig CL, Marshall AL, Sjöström M, et al. International physical activity questionnaire: 12-country reliability and validity. Med Sci Sports Exerc. 2003; 35(8):1381–1395. doi:10.1249/01.MSS.0000078924.61453.FB. [PubMed: 12900694]
22. Rejeski WJ, Ip EH, Katula JA, White L. Older adults' desire for physical competence. Med Sci Sports Exerc. 2006; 38(1):100–105. doi:10.1249/01.mss.0000183231.61022.18. [PubMed: 16394960]
23. Ainsworth BE, Macera CA, Jones DA, et al. Comparison of the 2001 BRFSS and the IPAQ Physical Activity Questionnaires. Med Sci Sports Exerc. 2006; 38(9):1584–1592. doi:10.1249/01.mss.0000229457.73333.9a. [PubMed: 16960519]
24. O'Malley AS, Cunningham PJ. Patient experiences with coordination of care: the benefit of continuity and primary care physician as referral source. J Gen Intern Med. 2009; 24(2):170–177. doi:10.1007/s11606-008-0885-5. [PubMed: 19096897]
25. Blair SN, Kohl HW, Paffenbarger RS, Clark DG, Cooper KH, Gibbons LW. Physical fitness and all-cause mortality. JAMA. 1989; 262(17):2395–2401. doi:10.1001/jama.1989.03430170057028. [PubMed: 2795824]
26. Blair SN, Kohl HW, Barlow CE, Paffenbarger RS, Gibbons LW, Macera CA. Changes in physical fitness and all-cause mortality. JAMA. 1995; 273(14):1093–1098. doi:10.1001/jama.1995.03520380029031. [PubMed: 7707596]
27. Petrella RJ, Koval JJ, Cunningham DA, Paterson DH. A self-paced step test to predict aerobic fitness in older adults in the primary care clinic. J Am Geriatr Soc. 2001; 49(5):632–638. doi:10.1046/j.1532-5415.2001.49124.x. [PubMed: 11380757]
28. Petrella RJ, Koval JJ, Cunningham DA, Paterson DH. Can primary care doctors prescribe exercise to improve fitness? The Step Test Exercise Prescription (STEP) project. Am J Prev Med. 2003; 24(4):316–322. doi:10.1016/S0749-3797(03)00022-9. [PubMed: 12726869]
29. Haskell WL. Physical activity by self-report: a brief history and future issues. J Phys Act Health. 2012; 9(Suppl 1):S5–S10. [PubMed: 22287448]

Table 1

Demographic Data and Physical Test Scores (N = 201)

Variable	Mean (SD)	Range
Age (years)	54.03 (10.54)	40.44–80.95
Education (years)	14.22 (3.35)	0.00–22.00
Resting Heart Rate (beats/min)	72.94 (13.94)	46–147
Weight (kg)	86.10 (23.31)	43.18–166.82
BMI (kg/m^2)	30.17 (8.03)	17.37–60.90
Systolic Blood Pressure (mm Hg)	125.69 (19.89)	87–198
Diastolic Blood Pressure (mm Hg)	79.44 (13.02)	51.0–130
Race (%)		
Black	27.36	
White	69.65	
Other	2.99	
Sex (%)		
Male	50.75	
Female	49.25	
Arm Curl (curls in 30 seconds)	18.20 (6.10)	0.0–36.0
Chair Stand (stands in 30 seconds)	13.92 (5.10)	0.0–29.0
Left Back Scratch (cm)	−18.59 (16.76)	−83.0 to 25.0
Right Back Scratch (cm)	−14.11 (17.25)	−72.0 to 14.0
Chair Sit and Reach (cm)	−2.62 (14.02)	−39.0 to 14.0
6-minute walk (m)	525.67 (173.69)	45.7–869.0
% Body Fat	32.02 (12.14)	6.1–64.6

Table 2

Senior Fitness Test Data and SRFit Response Item Correlations (N = 201)

Fitness domain	**Mean score (SD)**[a]	**Analogous fitness test**	**Spearman rho**	**Cronbach's alpha**
Upper-Body Strength and Endurance(UBS)		Biceps Curl		.81
Abbreviated SRFit survey items				
How hard is it to move a 5 lb (8 lb males) weight up to your shoulder	4.61 (0.80)	Biceps Curl	0.45*	
How hard is it to return a 5 lb (8 lb males) weight to your side	4.63 (0.75)	Biceps Curl	0.44*	
How many times can you move a 5 lb weight (8 lb males) from your side to your shoulder and return in 30 seconds	3.55 (1.31)	Biceps Curl	0.60*	
SRFit Upper-Body Strength Summary Score mean (SD)	12.84 (2.52)	Biceps Curl	0.59*	
Lower-Body Strength and Endurance (LBS)		Chair Stand		.83
Abbreviated SRFit survey items				
How hard is it to move from a standing position to a seated position	4.64 (0.80)	Chair Stand	0.48*	
How hard is it to move from a seated position to a standing position	4.53 (0.89)	Chair Stand	0.54*	
How many times can you move from sitting to standing in 30 seconds	3.61 (1.20)	Chair Stand	0.65*	
SRFit Lower-Body Strength Summary Score mean (SD)	12.83 (2.56)	Chair Stand	0.65*	
Left Upper-Body Flexibility (UBF)		Left Back Scratch		.77
Abbreviated SRFit survey items				
How hard is it to reach your left hand over your left shoulder	4.32 (1.07)	Left Back Scratch	0.39*	
How far can you reach your left hand under your left shoulder	4.36 (0.99)	Left Back Scratch	0.42*	
How far can you reach your left hand over your left shoulder	4.13 (0.89)	Left Back Scratch	0.53*	
SRFit Left Upper-Body Flexibility Summary Score mean (SD)	12.36 (2.42)	Left Back Scratch	0.50*	
Right Upper-Body Flexibility (UBF)		Right Back Scratch		.75
Abbreviated SRFit survey items				
How hard is it to reach your right hand over your right shoulder	3.91 (0.95)	Right Back Scratch	0.48*	
How far can you reach your right hand over your right shoulder	4.07 (0.85)	Right Back Scratch	0.49*	
How far can you reach your right hand under your right shoulder	3.95 (0.99)	Right Back Scratch	0.53*	
SRFit Right Upper-Body Flexibility Summary Score mean (SD)	12.42 (2.33)	Right Back Scratch	0.61*	
Lower-Body Flexibility (LBF)		Sit and Reach		.84
Abbreviated SRFit survey items		*r* value		
How hard is it for you to reach down your left leg toward your toes	4.33 (0.98)	Sit and Reach	0.35*	
How far could you reach down your left leg toward your toes	4.35 (1.37)	Sit and Reach	0.52*	
How hard is it to reach down your right leg toward your toes	4.39 (0.87)	Sit and Reach	0.37*	
How far could you reach down your right leg toward your toes	4.31 (1.35)	Sit and Reach	0.54*	
SRFit Lower-Body Flexibility Summary Score mean (SD)	17.46 (3.80)	Sit and Reach	0.55*	
Cardiovascular Endurance (CVF)		6-Minute Walk		.75

Fitness domain	Mean score (SD)[a]	Analogous fitness test	Spearman rho	Cronbach's alpha
Abbreviated SRFit survey items				
How long could you walk at your normal speed without stopping	4.70 (0.70)	6-Minute Walk	0.38*	
How many times could you walk up and down a grocery store aisle in 6 min	4.21 (1.09)	6-Minute Walk	0.61*	
How many times could you walk around a track in 6 minutes	4.02 (1.26)	6-Minute Walk	0.55*	
SRFit Cardiovascular Endurance Summary Score mean (SD)	13.13 (2.49)	6-Minute Walk	0.63*	
Body Fat and BMI (BC)		BodPod; BMI		.85
Abbreviated SRFit survey items				
What is your waist size	2.37 (0.73)	Body Composition; BMI	0.65*; 0.71*	
What is your BMI	2.74 (0.90)	Body Composition; BMI	0.72*; 0.72*	
What is your percent body fat	2.75 0.87	Body Composition; BMI	0.64*; 0.69*	
SRFit Body Composition and BMI Summary Score mean (SD)	7.82 (2.21)	Body Composition; BMI	0.75* 0.79*	

[a]The possible summary score ranges for each domain were: UBS (0–15), LBS (0–15), UBF (0–30), LBF (0–20), CVF (0–15), and BC (0–15). A higher score indicated a higher level of fitness.

*$P < .001$.

Abbreviations: BMI, Body Mass Index; SRFit, Self-Reported Fitness Survey.

Table 3

Correlations Between Survey Scores and SRFit Summary Scores, and Intraclass Correlation Coefficient

	SRFit Domain						
Survey	**Upper Body Strength and Endurance (n = 186)**	**Lower Body Strength and Endurance (n = 182)**	**Left Upper Body Flexibility (n = 195)**	**Right Upper Body Flexibility (n = 191)**	**Lower Body Flexibility (n = 190)**	**Cardiovascular Endurance (n = 177)**	**Body Composition (n = 185)**
SF-36	0.57*	0.64*	0.44*	0.44*	0.42*	0.72*	−0.27*
IPAQ	0.39*	0.39*	0.32*	0.32*	0.28*	0.39*	−0.23*
Older Adults							
Desire for Physical Competence	0.52*	0.56*	0.40*	0.44*	0.39*	0.58*	–0.29*
SRFit ICC (N = 50)	0.90	0.90	0.83	0.87	0.87	0.79	0.93

* *P* < .001.

Abbreviations: SF-36, Perceived Health and Short Form Health Survey Physical Function Subscale; IPAQ, International Physical Activity Questionnaire; SRFit, Senior Fitness Survey; ICC, Intraclass correlation coefficient.