Physical activity measurement related to falls prevention: a rapid review

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Executive Summary

This report comprises a review of physical activity measures in the elderly, suitable for population surveys and for a falls-specific NSW survey. The first aim of this project was to review generic physical activity measures in the elderly, that could be used by telephone survey in a population, and the second aim was to identify any falls-related physical activity questions for a more specific survey of falls in NSW.

A review was undertaken of the properties of existing physical activity measures, and the conclusion, based on measurement properties, length, acceptability and range of domains covered, was that the Physical Activity Scale in the Elderly (PASE) was the recommended measure. For additional elements related to falls prevention, the review identified questions on balance, strength training, flexibility and adherence to and maintenance of exercise programs as desirable questions to include in a survey. Some of these, especially the self-report balance questions, may require further piloting and validation prior to use in populations.

Preamble

This document is divided into two sections. The first part is a review of physical activity measures for use in a population survey amongst older adults. The specific mode of the interview is by computer assisted telephone interview (CATI) and physical activity measures are reviewed for older adults with the mode of interview in mind. The first part reviews different physical activity measures, considers their reliability and validity, identifies those used commonly to survey populations of older adults and identifies the domains of physical activity that they assess. In addition, measurement properties such as reliability and validity are reviewed, and conclusions are drawn regarding their suitability for a CATI survey of older Australian adults, with a falls prevention focus.

The second part of this review of physical activity related measures is concerned with the measurement of falls risk. In particular, elements of falls risk that can be assessed by self report are reviewed, sources of data and questions identified, and recommendations made. For this part, given the relatively limited literature in this area, expert review was undertaken, with contact made with more than twenty “falls and physical activity experts” around the world. Their impressions and comments were noted, and questions that they generated (even when those questions have no established measurement properties in population surveys) are presented. These questions may be in the form of “indicator” questions, and could be useful in a population survey.

The report has three appendices. Appendix 1 has information on the reliability and validity of the measures examined; Appendix 2 has information on the measures used in falls prevention trials, indicating which are usually assessed by self report,

and which by objective assessment. Appendix 3 is a summary of the actual questions asked in the measured reviewed.

Background

The NSW Health Department is planning to conduct a population health survey of relevance to falls prevention among older adults, using a telephone administered interview format. This review identifies the physical activity questions for that survey.

A particular focus of the proposed survey will be falls prevention, but many of the benefits of physical activity in the elderly are independent of falls risk. For example, physical activity reduces diabetes incidence and reduces the risk of cardiovascular events and deaths. These epidemiological observations are true even in older adults aged 60 and above. Repeated epidemiological studies show a dose response relationship between increments of physical activity, to the moderate health enhancing threshold, and reduced all cause mortality, and this relationship exists across the lifespan.

Physical activity is also associated with improved mental health in the elderly, and can be used amongst middle aged and older adults as a treatment for depression and anxiety. Physical activity is also associated with improved functional status and the estimates of functional status improvement are around 10-15 years. This means that a regularly active 70 year old person has the functional status and functional capacity to perform tasks of every day living of a completely sedentary 55-60 year old. Recent studies also show that physical activity may reduce the risk and incidence of some neurological conditions, including some of the cognitive deficit due to ageing, and specifically reduce rates of Alzheimer's and Vascular Dementia. Most recent research at the chromosomal level has shown that physical activity may have an anti-ageing effect, by reducing fragmentation at the ends of chromosomes (a sign of biological ageing) and that this has been examined in twin studies, and shown to be independent of genetic factors, and therefore attribute the differences to active lifestyles and regular physical activity participation.

These benefits of physical activity across the spectrum of health outcomes point to the importance of measuring physical activity amongst older adults as part of any appraisal of their health risk status. The burden of disease attributable to physical inactivity is similar to that attributable to high cholesterol, hypertension, obesity or tobacco use, and these five risk factors in concert summate to around 50% of the preventable risk.

On account of the proposed falls prevention survey, this review also considers a falls-specific component of physical activity measurement, in that physical activity or measures related to it have a role in falls prevention: in reducing the risk of falls, in strengthening bones at particular periods of life, and in strengthening muscles around joints that may contribute to reduced falls risk.

PART 1
Physical activity measures for use amongst older adults

This review considered more than 30 physical activity measures that might be used in population surveillance. A specific subset were considered in greater detail for use amongst older adults, and this subset was chosen based on precedent (previous use), feasibility and relevance for older adults, and their acceptability amongst older adults; in addition, information on the measurement properties of these instruments in this population group was sought. Of these candidate instruments, subsets of instruments are considered here, and they include:

- Stanford Seven Day Physical Activity Recall questionaire
- Physical Activity Scale in the Elderly (PASE)
- Yale Physical Activity Survey (YPAS)
- Active Australia questionnaire
- The Community Health Activities Module Program for Seniors questionnaire (CHAMPS)
- Rapid Assessment of Physical Activity instrument, and its recent and related measure the Telephone Assisted Physical Activity measure (TAPA).

In addition, routine population surveys were reviewed, particularly those in English, and specifically the Health Insurance Survey, the National Health and Nutrition Examination Survey (NHANES), and the Behavioral Risk Factor Surveillance System (BRFSS) are reviewed in this summary, as they have asked questions related to falls, and specifically about physical activity in older populations. Active Australia, strictly, is in this category of surveillance measurement as well.

The current physical activity measurement in population surveillance in Australia is the Active Australia questionnaire (AAQ). This is an eight item questionnaire that asks about the past week, and asks responders to provide information about their total time spent walking, in moderate activities and in vigorous physical activities and also asks about the number of sessions that these activities were performed during this previous week. It is therefore a question that enables the total number of sessions and the total time to be calculated. It can also provide a categorical summary measure, as an estimate of people meeting the PA guidelines for health enhancing physical activity threshold according to the epidemiological evidence (namely five times a week of at least moderate physical activity, for at least 150 minutes in total). This is described as the Health Enhancing Physical Activity (HEPA) threshold.

The Rapid Assessment of Physical Activity (RAPA) is a measure designed to assess physical activity amongst older adults. It broadly classifies individuals into sedentary, underactive, moderate activity and sufficient activity for health, and is coded based on responses to nine questions where people characterise their activity. The frame of reference is the ‘usual week’. The domains of activity include physical activities for pleasure and recreation in people’s leisure time, at work or for transportation. The

RAPA measure is designed specifically to be self completed. This measure has been assessed for measurement properties and shows good correlations with the CHAMPS survey and the BRFSS survey, with Spearman correlations of greater than 0.5. Compared to CHAMPS, RAPA also shows good sensitivity and specificity 0.81 and 0.69 respectively. It shows good discriminate validity compared to energy expenditure derived from CHAMPS, in that RAPA is better at discriminating energy expenditure (low and high levels) compared to BRFSS or the PACE survey (Topolski 2006).

A recent study has adapted the RAPA measure for use by telephone assessment. This is known as the telephone assessment of physical activity questionnaire for older adults (TAPA). This was published by Mayer and colleagues (Preventing Chronic Disease, 2008). This TAPA measure shows a good correlation with both RAPA and CHAMPS, and classifies people similarly into health enhancing levels, inactive levels and intermediate levels, as does RAPA. The physical activity component of this TAPA measure is comprised of 10 'yes or no' response questions that are formatted and developed for use by telephone surveys. This provides a categorical measure of physical activity, but does have some strengths in that it has been specifically designed for telephone usage.

The Yale Physical Activity Survey (YPAS) was developed in the early 1990s and has shown acceptable reliability and validity across numerous studies. It assesses physical activity across a typical week. It asks for 'time spent in light intensity physical activities' in domestic and related settings, also asks about leisure time physical activity and exercise, and separately asks about recreational activity. It asks specifically about vigorous activities and walking, and includes frequency and duration. It also asks about time spent moving around on your feet during the day and time spent sitting. It borrows the Paffenbarger instrument "number of flights of stairs" question. Finally, it asks about self rated physical activity compared to previous seasons. YPAS is a well accepted physical activity instrument for use in the elderly. It is designed for interviewer administration, takes around 20 minutes and provides summary indices in terms of energy expenditure or an activity score in terms of hours per week. It has not been used extensively in telephone mode.

The PASE (Physical Activity Scale for the Elderly) is a relatively short instrument that was also developed in the early 1990s. It shows good test re-test repeatability, with coefficients greater than 0.7. Its validity coefficients are between 0.2 and 0.4, are similar to other instruments. PASE asks people to report frequency and duration for sitting time, walking, flights of stairs, light intensity physical activity, moderate intensity physical activity and strenuous or vigorous physical activity. It also has separate questions on domestic tasks and home and yard care, and a section on job related or occupational physical activity. It can be reduced to a summary score. PASE has several strengths, firstly it takes five minutes to complete, secondly it has been tested in interviewer modality, including telephone based surveys. Thirdly, there is Australian experience of using the PASE measure, both in intervention trials and clinical settings, and also in population telephone based surveys as part of the

Sydney Diabetes Prevention Project. It is the briefest of the elderly-specific general physical activity questionnaires.

One of the most extensively used instruments is the Community Health Activities Model Program for Seniors questionnaires (CHAMPS). This is an extensive instrument which shows good reliability and validity testing. It takes at least 15 minutes to complete, and is usually a self completed survey instrument. It asks about the previous four week period, and asks about recreation and leisure activities, home and yard work, walking and aerobic and exercise related activities and specific activities, and also strength training. A summary score can be obtained either as total energy expenditure estimates or as frequency of activities per week.

The Stanford Seven Day Physical Activity Call questionnaire is a self report instrument. It is designed for use in population surveys, originally developed for cardiovascular disease prevention programs. Respondents are asked about the amount of time they spent in sleep, in moderate, hard and very hard physical activities, and examples for each of these categories are provided. The remaining time is assumed to be spent in light activity or sitting. This allows the summation of an energy expenditure estimate in kilojoules over the previous week. It shows reasonably good reliability and acceptable validity compared to direct measures of energy expenditure. It has been used widely in epidemiological studies in the 1980s and 1990s, and shows predictive validity against incident cardiovascular disease and all cause mortality. It shows amongst the best direct validation coefficients, compared to doubly labelled water. It is a relatively short questionnaire comprised of 14 questions.

The next discussion summarises some of the physical activity measures used in large scale routine telephone and interview based population surveys, particularly those in the USA. Three surveys are of central interest, as they have had specific interests in falls prevention from time to time. The first of these is the Behavioral Risk Factor Surveillance System (BRFSS) that is asked by telephone in all American states each year. The physical activity questions ask about activity levels at work, and then days per week and total time per day for both moderate intensity activities and vigorous physical activities. A summary score for moderate to vigorous physical activity and thresholds for the proportions of the population reaching the Health Enhancing Physical Activity level can be calculated.

The large National Health and Nutrition Examination Survey (NHANES) is asked every few years in the US, of both repeat cross sectional and longitudinal samples. Physical activity questions ask about transport related physical activity, domestic tasks, sitting and standing at work and home, vigorous physical activity in sport in leisure time, and moderate intensity physical activity and sport in leisure time. The time period is over the previous 30 days. Objective measures are also collected in the NHANES surveys, but accelerometer data does not correlate well with self reported physical activity (Troiano 2008). NHANES has a large set of bio-marker and objective measures that complement the self reported questionnaire information.

The National Health Interview Survey (NHIS) asks about physical activity in leisure time. Here, the questions relate to vigorous physical activity and their frequency, light or moderate physical activities and their frequency. Note that in this survey light intensity activities are combined with moderate leisure time activities.

Finally, and importantly, sometimes physical population-level physical activity questions are collected for different purposes. For example the social marketing campaign “Stay on your Feet” in Western Australia was attempting to influence community understanding and risk of falls in WA. It had a falls prevention risk factor survey in 2004. Here the important measures are those relevant specifically to a social marketing campaign, and apart from self reported incidence of falls, also include awareness of the campaign, brand recall, attitudes, perceptions and beliefs about falls and falling risk, and these are important to collect at baseline, as change in these attributes may be attributable to social marketing efforts and campaigns (Milligan 2004). These are population survey questions, but are specific and necessary only when assessing the effects of a social marketing campaign.

Conclusion

Overall there are several contenders for the physical activity measure that seem to be reasonable options or are well supported by international or national level experts. The challenge is whether to remain with Active Australia, our standard or usual physical activity phone interview measure, in this falls prevention survey. It has the advantages of prior use, extensive trend data across the NSW Health Survey Program, and known and acceptable reliability and validity properties. It measures mostly leisure time physical activity with a little bit of active transport, but does not assess work domains or the domestic setting, with the latter being particularly important amongst older adults. It therefore has the strength of comparability, but the weaknesses of perhaps being too brief and not measuring a sufficient breadth of domains of physical activity for this survey.

The next strong contender is CHAMPS, which is a well supported and well validated survey, but is limited by being substantially longer than several of the other candidate surveys. It is also typically used in self reported mode, and does not appear to have been administered anywhere by telephone, even in pilot studies.

The first stronger candidate measure is the PASE, which has been used in Australia, has been used elsewhere by telephone, and only takes five minutes to complete. Its strengths are that it covers leisure time activity, occupational activity and household activity and provides a summary activity score. It is of known measurement properties, which were acceptable for reliability and validity.

The other possible candidate measure is a much newer measure, first reported only in 2008, which is the TAPA (Telephone Administered Physical Activity survey). This is the telephone adaptation of the RAPA measure, and is even briefer than the PASE

score. It covers domains but only provides a categorical outcome, namely dividing the population into levels of sufficient activity. It has only been tested once but its measurement properties there were reasonable.

In summary, the PASE seems to have a slight edge, based on its history and reasonable measurement properties, but the TAPA is worth considering by the Committee because it is even shorter than the PASE measure. It depends whether a continuous score or a categorical measure are the desired outcomes. The PASE has some additional properties discussed in Part 2 (Strength Training Measures), but these domains of measurement are also available in the TAPA.

PART 2
Questions that could be included in stand alone surveys with a specific focus on falls or falls prevention (in addition to physical activity specific questions)

This section describes items that might be included in the falls prevention survey in addition to physical activity specific measures. These include items related to falls risk, and the scope and breadth of these questions could be quite substantial. Only those related to movement or physical activity are considered here, but other areas or domains of measurement including physical domestic circumstances, condition of the physical environment surrounding the home, medication use, alcohol misuse and other clinical co-morbidities are important indicators of falls risk, and could be assessed in a falls prevention survey. These ancillary indicators are beyond the scope of this physical activity focus document.

The data in the text box show the most recent summary of the evidence reported in October 2008 by the United States Department of Health and Human Services. This document restated the importance of physical activity for older adults, but specifically focused on falls prevention. The recommendation is for regular physical activity, with a reduction in falls seeming programs that include balance training and probably muscle strengthening as well. It is those latter two areas that form most of the discussion in this part of the report.

US Physical Activity Guidelines October 2008 (p13)

In older adults at risk of falls, strong evidence shows that regular physical activity is safe and reduces this risk. Reduction in falls is seen for participants in programs that include balance and moderate-intensity muscle-strengthening activities for 90 minutes a week plus moderate-intensity walking for about an hour a week. It's not known whether different combinations of type, amount, or frequency of activity can reduce falls to a greater degree. Tai chi exercises also may help prevent falls.

This part focuses on two areas, firstly, measures of muscle strengthening and flexibility and resistance training, and secondly, measures of balance. The context here is to consider self report measures in these areas, and to look at the large scale studies and population surveys and their measures of these phenomena.

Most experts agree that balance training and strength training are key components of physical activity that prevent falls. A recent meta-analysis and meta-regression (Lord et al, accepted for publication, JAGA 2009) found that strength training alone may not contribute to effective risk reduction, unless in conjunction with balance training. However, strength training is still considered important. Measures of training-related (aerobic) physical activity are adjunct interventions, but are thought to have some

efficacy in reducing falls risk, and were described in section 1 above[1]. Therefore, the domains that require assessment include balance / balance training, physical activity and exercise that improves balance, strength training and resistance training in conjunction with balance related activities. In addition, the evidence suggests that all domains of (aerobic) physical activities should be covered, including domestic tasks and duration of exercise regimens (with longer duration showing protective status on falls risk). Many of these areas are not easy to measure using self report questions in a telephone survey.

To illustrate the point that many of the measures in falls prevention trials are objectively assessed, the authors reviewed a convenience sample of recent falls prevention interventions. This sample was partly based on a random sample of all falls prevention interventions in the past three years, but some were added that 'the authors' were familiar with from Australia, that were well known, or that were important in the falls prevention field. This is not meant to be a comprehensive review of falls intervention studies, but was undertaken to examine whether falls risk parameters were measured mostly by self report or objectively. This is shown in the Table in Appendix 2. For most studies, the number of, or incidence of, falls or fractures was by self report, as this is considered a reasonably reliable estimate. However, for all studies except the study by Yardley, measures of balance were measured objectively using a range of techniques to assess leaning, sway and balance. Only in the paper by Yardley, which was an internet delivered intervention, was balance measured by self report. Balance was an important objective measure in almost all of the studies that the authors reviewed. For visual acuity, three out of four studies measured it objectively, and only the internet trial assessed it by self report. Similarly, strength both grip and lower limb strength, was measured objectively in most studies, but by self report as well in one of the Japanese trials. Measures such as reaction time and walking speed were also generally objectively measured. Falls risk related variables such as medication usage, mental health, and physical activity were often measured by self report. In summary, the table in Appendix 2 indicates that some of the key parameters around falls prevention are generally measured objectively, and are not usually measured by self report.

This poses challenges to a telephone based survey, where there are no major or established measures of balance, of proprioception, of strength or resistance training. These are more important parameters related to physical activity that are important in falls prevention, but have limited self report examples.

Therefore, for this document, independent experts were consulted internationally and nationally, and opinions were sought regarding self report measures in these areas. Several candidate measures were proposed, and occasionally a scale or set of

[1] Note that it is not possible to specify based upon the existing studies the minimum amounts/types of physical activity that are effective. Most studies test low to medium amounts of PA. Also, many older adults at risk for falls cannot easily do 150 minutes/week of aerobic PA. The preferred generic PA measures in section 1 can provide different thresholds of PA performed [this led to the decision to place PASE ahead to TAPA as the PA measure that is recommended for large scale surveys – in part 1 of this report]

questions was identified, but in most cases the measurement properties of these questions or scales is not known. Therefore these items have face validity in terms of being described or defined by very experienced researchers in this field, but have not been subject to formal measurement testing. This may remain as an area requiring further pilot work, to differentiate between these candidate measures, to assess their repeatability, assess their validity against some objective measures of these phenomena, and assess their acceptability and comprehensibility by the target audience in a pilot study phase.

Strength Training Measures

The PASE Score has questions on muscle strengthening and endurance, such as lifting weights or push ups. These two questions are included in the PASE Score, and can be separated out for muscle strengthening. The CHAMPS questionnaire has two questions regarding strength training activities in the previous four weeks; these are light strength training or general conditioning exercises. The TAPA questionnaire has two questions related to strength and flexibility training and this is one of the few measures that actually asks specifically about muscle strengthening and separately asks about activities that increase flexibility. The Seven Day Recall and the YPAS do not ask specifically about strength or resistance training. The large scale surveillance NHANES survey does ask two questions about strength training, and the BRFSS has asked one question about strength training in an optional module adopted by only some states in some specific years.

Nonetheless, there are a number of options on strength and flexibility questions. These are typically by self report, and it seems that some provide an idea of cumulative dose of strength activity, such as CHAMPS and PASE, and others just provide a categorical measure of whether people have carried out such activities or not, such as TAPA. The only benefit of the TAPA questionnaire is it asks about flexibility, which is not commonly asked in other surveys, and this question could be adapted into a PASE or CHAMPS format to provide a dose response or frequency level on the number of times people did this in a particular time period. This requires further thought, but a hybrid version of the current PASE strength-training questions plus an additional question on flexibility adapted from TAPA could be a minimum dataset that is realistic and feasible to cover this dimension of activities.

Balance

There are no clearly defined self reported ways of measuring balance, so this process presents challenges for a CATI telephone survey. Most of the measures of balance are objective, and are necessary measurements in falls prevention trials. The solution may be expert opinion and also there is one balance questionnaire. The expert opinion questions[2] are shown below [text box], and questions 1 and 2 characterise individuals' responses as to whether they attend or have attended an

[2] Q1 suggested by an international expert; Q2 , the self-rated balance single item has been used predictively in Australian falls prevention trials (Sherrington and Lord, personal observation)

exercise program to improve balance, and the second question is a self rated question regarding perceptions of balance. These are expert defined, and would need pilot testing, and ideally a small validation study compared to objective measures of balance. This may already have been conducted, but is not evident in the literature nor in my discussions with experts consulted.

Balance: Potential Questions

1. Do you attend an exercise program that includes special exercises to improve your balance? YES / NO
2. Do you feel your balance is (1= excellent, 2 = very good, 3 = good, 4 = fair, 5 = poor)
3. Balance BAQ scale NHANES, in Appendix 3 Measures

There is one balance scale, the BAQ, that was used in the NHANES survey in 1999-2000 (provided in Appendix 3). Although they claim to have demonstrated the measurement properties of this scale, it has not been published in the peer reviewed literature and its measurement properties are unknown. It is a more extensive balance questionnaire, and if that is a dimension that is important to this survey, then it should be validated as well against objective balance measures. Its one limitation is that it takes a historical perspective, in looking at balance in the past, and may be a measure of acute balance disturbance not necessarily long term balance disturbances (although either could contribute to increasing falls risk).

Other Measures

Other measures should include questions relating to continuity or length of attendance at exercise programs. First, a question should be drafted that asked people how long they attended the exercise and balance training program. Second, a question should be asked as to whether people still perform those exercises and activities. Responses could be coded as ‘daily’, ‘most days’, ‘once a week’, or ‘less often’. This is an important question because persistence with the exercise and balance regimen is shown to reduce subsequent falls risk (Lord et al in press). Similarly, maintenance of strength training activities, regular and general physical activities are also important in understanding falls risk. One way of asking this generically is to ask people how physically active they are compared to an earlier time period, and both a year previously or five years previously have been used. The response categories here are ‘much more physically active’, ‘more physical active’, ‘about the same’, ‘less physically active’, and ‘much less physically active’. This question has been asked in the 2000 National Physical Activity Survey across Australia and people were asked the 12 month version of this question without difficulty. It had been shown to provide useful information, particularly in relation to

change within individuals, and would therefore be particularly useful if the proposed survey was a cohort sample, rather than repeat cross sectional samples.

Conclusion and Recommendations

1. This review identifies generic physical activity instruments for use with older adults. Of these, several candidate instruments are acceptable, but for a telephone survey, based on length and previous piloting in Australia, it seems that the PASE questionnaire has advantages over the TAPA, its nearest competitor. The Active Australia questions do not provide enough information of domains of special interest to older populations.

2. The second part of the review identifies a dearth of questions on balance, strength training and other physical-activity related questions of relevance to falls risk. It is proposed that the two single item balance questions be included, and that they be tested for reliability and validity; if a longer balance questionnaire is needed, the BAQ should be similarly tested. For questions on strength training, the two PASE questions are proposed, with the flexibility question from TAPA added (but formatted as per the PASE questions). Additional questions on exercise adherence and maintenance of recommended exercise/balance behaviors is recommended.

3. Other dimensions of falls risk such as visual problems, polypharmacy, alcohol mis-use, medical co-morbidities and environmental questions are also recommended for measurement, but are beyond the scope of this review.

References

1. Cyarto EV, Marshall AL, Dickinson RK, Brown WJ (2006). Measurement properties of the CHAMPS physical activity questionnaire in a sample of older Australians. *Journal of Science and Medicine in Sport*, 9: 319-25.
2. Harada ND, Chiu V, King AC, Stewart AL (2001). An evaluation of three self report physical activity instruments for older adults. *Medicine and Science in Sports and Exercise*, 33: 962-70.
3. Stewart AL, Mills KM, King AC, Haskell WL, Gillis D, Ritter PL (2001). CHAMPS Physical Activity Questionnaire for older adults: outcomes for interventions. *Medicine and Science in Sports and Exercise*, 33: 1126-41.
4. Voorrips LE, Ravelli ACJ, Dongelmans PCA, Deurenberg P, Van Staveren WA (1991). A physical activity questionnaire for the elderly. *Medicine and Science in Sports and Exercise*, 23: 974-9.
5. Allison MJ, Keller C, Hutchinson PL (1998). Selection of an instrument to measure the physical activity of elderly people in rural areas. *Rehabilitation Nursing*, 23: 309-14.
6. Dinger MK, Oman F, Taylor EL, Vesely SK, Able J (2004). Stability and convergent validity of the Physical Activity Scale for the Elderly (PASE). *Journal of Medical Physical Fitness*, 44: 186-92.
7. Harada ND, Chiu V, King AC, Stewart AL (2001). An evaluation of three self report physical activity instruments for older adults. *Medicine and Science in Sports and Exercise*, 33: 962-70.
8. Schuit AJ, Schouten EG, Westerterp KR, Saris WHM (1997). Validity of the physical activity scale for the elderly (PASE): According to the Energy Expenditure Assessed by the doubly labeled water method. *Journal of Clinical Epidemiology*, 50: 541-6.
9. Washburn RA, Smith KW, Jette AM, Janney CA (1993). The Physical Activity Scale for the Elderly (PASE): Development and Evaluation. *Journal of Clinical Epidemiology*, 46: 153-62.
10. Rohm-Young D, Jee SH, Appel LJ (2001). A comparison of the Yale Physical Activity Survey with other physical activity measures. *Medicine and Science in Sports and Exercise*, 33: 955-61.
11. Starling RD, Matthews DE, Ades PA, Poehlman ET (1999). Assessment of physical activity in older individuals: a doubly labeled water study. *Journal of Applied Physiology*, 86: 2090-6.
12. DiPietro L, Caspersen CJ, Ostfeld AM, Nadel ER (1993). A survey for assessing physical activity among older adults. *Medicine and Science in Sports and Exercise*, 25: 628-42.
13. Harada ND, Chiu V, King AC, Stewart AL (2001). An evaluation of three self report physical activity instruments for older adults. *Medicine and Science in Sports and Exercise*, 33: 962-70.
14. Topolski TD Logerfo J Patrick DL Williams, B Walwick, J Patrick M (2006). The Rapid Assessment of Physical Activity (RAPA) Among Older Adults. *Preventing Chronic Disease*, 3(4).

15. Brown WJ, Trost SG, Bauman A, Mummery K, Owen N (2004). Test-retest reliability of four physical activity measures used in population surveys. *Journal of Science and Medicine in Sport*, 7: 205-15.
16. Timperio A, Salmon J, Bull F, Rosenberg M. Validation of physical activity questions for use in Australian population surveys. Commonwealth Department of Health and Aging, Canberra, 2002.
17. Timperio A, Salmon J, Rosenberg M, Bull FC. Do logbooks influence recall of physical activity in validation studies? *Medicine and Science in Sports and Exercise,* 2004 Jul;36(7):1181-6.
18. Mayer CJ, Steinman L, Williams B, Topolski TD, LoGerfo J (2008). Developing a Telephone Assessment of Physical Activity (TAPA) Questionnaire for Older Adults*. Preventing Chronic Disease*, 5(1).
19. Richardson MT, Ainsworth BE, Jacobs DR, Leon AS (2001). Validation of the Stanford 7-Day Recall to Assess Habitual Physical Activity. *Annals of Epidemiology*, 11: 145-153.
20. Taylor-Piliae RE, Norton LC, Haskell WL, Mahbouda MH, Fair JM, Hlatky MA, Go AS, Fortmann SP (2006). Validation of a New Brief Physical Activity Survey among Men and Women Aged 60-69 Years. *American Journal of Epidemiology*, 164: 598-606.

Appendix 1: Measurement properties of selected physical activity instruments used in falls prevention studies in the elderly - reliability and validity

Study	Measure	Reliability (test-retest)	Validity
1	Community Health activity Model Program for Seniors Questionnaire (CHAMPS) (Cyarto et al., 2006)	Light activity hours/week: ICC = 0.67, p < .0001 Moderate activity hours/week: ICC = 0.85, p < .0001 Vigorous activity hours/week: ICC = 0.34, p < .05 Moderate/vigorous hours/week: ICC = 0.78, p< .001 All activity hours/week: ICC = 0.76, p < .0001 Light activity frequency/week: ICC = 0.65, p < .0001 Moderate activity frequency/week: ICC = 0.81, p<.0001 Vigorous activity frequency/week: ICC = 0.45, p<.001 Moderate/vigorous frequency/week: ICC=0.76, p<.0001 All activity frequency/week: ICC = 0.79, p < .0001	<u>All activity (MET hours/week)</u> vs chair stand: r = 0.21, p < .01 vs step test: r = 0.28, p < .001 vs 8-ft up & go: r = 0.28, p < .001 vs tandem balance: r = 0.29, p < .001 vs SF-12 physical: r = 0.24, p < .01 vs SF-12 mental: r = -0.14 <u>All activity (frequency/week)</u> vs chair stand: r = 0.14 vs step test: r = 0.26, p < .01 vs 8-ft up & go: r = 0.28, p < .001 vs tandem balance: r = 0.23, p < .01 vs SF-12 physical: r = 0.15 vs SF-12 mental: r = -0.09 <u>Moderate & vigorous activity (MET hours/week)</u> vs chair stand: r = 0.19, p < .05 vs step test: r = 0.32, p < .001 vs 8-ft up & go: r = 0.31, p < .001 vs tandem balance: r = 0.31, p < .001 vs SF-12 physical: r = 0.18, p < .05

Study	Measure	Reliability (test-retest)	Validity
			vs SF-12 mental: r = -0.14 <u>Moderate & vigorous activity (frequency/week)</u> vs chair stand: r = 0.16, p < .05 vs step test: r = 0.31, p < .001 vs 8-ft up & go: r = 0.29, p < .001 vs tandem balance: r = 0.28, p < .001 vs SF-12 physical: r = 0.12 vs SF-12 mental: r = -0.11
2 (7, 13)	Community Health activity Model Program for Seniors Questionnaire (CHAMPS) (Harada et al., 2001)	ICC = 0.62 r = 0.62	vs activity monitor (ankle): r = 0.36, p < .01 vs activity monitor (waist): r = 0.42, p < .001 vs lower body function: r = 0.44, p < .01 vs 6-min walk: r = 0.46, p < .01 vs body mass index: r = 0.01 vs SF-36 physical: r = 0.39, p < .01 vs SF-36 general: r = 0.35, p < .01 vs SF-36 mental: r = 0.25, p < .01 vs SF-36 pain: r = 0.26, p < .01
3	Community Health activity Model Program for Seniors Questionnaire (CHAMPS) (Stewart et al., 2001)	Kilocalories/week: ICC = 0.66 Frequency/week: ICC = 0.62	vs body mass index: r = 0.04 vs lower body function: r = 0.27, p < .01 vs 6-min walk: r =0.22, p < .001 vs self-reported function: r = 0.27, p < .001 vs self-reported energy/fatigue: r = 0.17, p < .01 vs self-reported pain: r = 0.07

Study	Measure	Reliability (test-retest)	Validity
			vs self-reported mental well-being: r = 0.05
4	Modified Baecke Questionnaire for Older Adults (Voorrips et al., 1991)	r = 0.89	vs 24-hour recall: r = 0.74 vs pedometer: r = 0.72
5	Physical Activity Scale for the Elderly (PASE) (Allison et al., 1998)	r = 0.72	vs self-rated health: r = 0.31, p = .08
6	Physical Activity Scale for the Elderly (PASE) (Dinger et al., 2004)	Total: ICC = 0.91 Leisure time: ICC = 0.56 Household: ICC = 0.94 Occupational: ICC = 0.91	Total vs accelerometer: r = 0.43, p = .001 Leisure time vs accelerometer: r = 0.11, p = .44 Household vs accelerometer: r = 0.38, p = .004 Occupational vs accelerometer: r = 0.20, p = .13
7 (2, 13)	Physical Activity Scale for the Elderly (PASE) (Harada et al., 2001)	None	vs activity monitor (ankle): r = 0.59, p < .001 vs activity monitor (waist): r = 0.52, p < .001 vs lower body function: r = 0.57, p < .01 vs 6-min walk: r = 0.68, p < .01 vs body mass index: r = -0.07 vs SF-36 physical: r = 0.30, p < .01 vs SF-36 general: r = 0.26, p < .05 vs SF-36 mental: r = 0.23, p < .05 vs SF-36 pain: r = 0.17

Study	Measure	Reliability (test-retest)	Validity
8	Physical Activity Scale for the Elderly (PASE) (Schuit et al., 1997)	None	Total sample vs physical activity ratio: r = 0.68 Men vs physical activity ratio: r = 0.78 Women vs physical activity ratio: r = 0.59
9	Physical Activity Scale for the Elderly (PASE) (Washburn et al., 1993)	Total sample: r = 0.75 Mail administration: r = 0.84 Telephone interview: r = 0.68	vs perceived health: r = -0.34, p < .01 vs any restricted activity: r = -0.12 vs sick impact profile score: r = -0.42, p < .01 vs heart rate: r = -0.13, p < .05 vs systolic blood pressure: r = -0.09 vs diastolic blood pressure: r = -0.07 vs body mass index: r = 0.01 vs grip strength: r = 0.37, p < .01 vs balance: r = 0.33, p < .01 vs dominant leg strength: r = 0.25, p < .01 vs non-dominant leg strength: r = 0.28, p <.01
10	Yale Physical Activity Survey (YPAS) (Rohm-Young et al., 2001)	None	Time vs 7-d recall (EE): r = 0.30, p = .02 Time vs 7-d recall (light hours): r = -0.19 Time vs 7-d recall (mod hours): r = 0.29, p = .02 Time vs 7-d recall (hard hours): r = 0.20

Study	Measure	Reliability (test-retest)	Validity
			Time vs VO2max: r = 0.11 Time vs resting heart rate: r = 0.15 Time vs body mass index: r = 0.02 Energy expenditure vs 7-d recall (EE): r = 0.37, p = .004 Energy expenditure vs 7-d recall (light hours): r = -0.24 Energy expenditure vs 7-d recall (mod hours): r = 0.37, p = .004 Energy expenditure vs 7-d recall (hard hours): r = 0.23 Energy expenditure vs VO2max: r = 0.20 Energy expenditure vs resting heart rate: r = 0.09 Energy expenditure vs body mass index: r = -0.10
11	Yale Physical Activity Survey (YPAS) (Starling et al., 1999)	None	Repeated measures analysis of variance (ANOVA) <u>Men (1107 kcal/day)</u> vs doubly labeled water (1211 kcal/day): no mean difference vs Minnesota LTPA Q (459 kcal/day): p < .05 vs Caltrac (554 kcal/day): p < .05 <u>Women (863 kcal/day)</u> vs doubly labeled water (873 kcal/day): no mean difference vs Minnesota LTPA Q (386 kcal/day): p < .05 vs Caltrac (379 kcal/day): p < .05

Study	Measure	Reliability (test-retest)	Validity
12	Yale Physical Activity Survey (YPAS) (DiPietro et al., 1993)	Time: r = 0.57 Energy expenditure: r = 0.58	Time vs VO_{2max}: r = 0.03 Time vs diastolic blood pressure: r = -0.35, p = .08 Time vs body mass index: r = -0.23 Time vs % body fat: r = -0.04 Time vs Caltrac: r = 0.08 Energy expenditure vs VO_{2max}: r =0.20 Energy expenditure vs diastolic blood pressure: r = -0.47, p = .01 Energy expenditure vs body mass index: r = -0.15 Energy expenditure vs % body fat: r = -0.07 Energy expenditure vs Caltrac: r = 0.14
13 (2, 7)	Yale Physical Activity Survey (YPAS) (Harada et al., 2001)	None	vs activity monitor (ankle): r = 0.46, p < .001 vs activity monitor (waist): r = 0.61, p < .001 vs lower body function: r = 0.49, p < .01 vs 6-min walk: r = 0.58, p < .01 vs body mass index: r = -0.10 vs SF-36 physical: r = 0.31, p < .01 vs SF-36 general: r = 0.31, p < .01 vs SF-36 mental: r = 0.24, p < .05 vs SF-36 pain: r = 0.23, p < .05

Study	Measure	Reliability (test-retest)	Validity
14	Rapid Assessment of Physical Activity (RAPA) (Topolski et al., 2006)	None	vs BRFSS: r = 0.59, p < .001 vs PACE: r = 0.56, p < .001 vs CHAMPS, moderate calories: r=0.54, p < .001 vs CHAMPS, total calories: r=0.48, p < .001
15	Active Australia (Brown et al., 2004)	Activity category: % agree = 66-72; κ = 0.50-0.52 Walking for recreation: ICC = 0.56 Walking for transportation: ICC = 0.15 Moderate: ICC = 0.16 Vigorous: ICC = 0.64 Gardening: ICC = 0.62 Total minutes: ICC = 0.59-0.64	Reported moderate validity against logbooks (Timperio [3] et al 2004 – see below)
16	Active Australia (Timperio et al., 2002, 2004)	None	Group 1 vs accelerometer: r = 0.22, p < .001; activity category % agree = 66-69; κ = 0.14-0.17 Group 2 vs activity log: activity category % agree = 73-79; κ = 0.35-0.36 Walking (frequency/day) vs activity log: r = 0.56, p<.001 Walking (minutes/day) vs activity log: r = 0.62, p < .001 Moderate (frequency/day) vs activity log: r = 0.05

Study	Measure	Reliability (test-retest)	Validity
			Moderate (minutes/day) vs activity log: r = 0.10 Vigorous (frequency/day) vs activity log: r =0.48, p<.001 Vigorous (minutes/day) vs activity log: r = 0.47, p < .001 Garden (frequency/day) vs activity log: r = 0.45, p <.001 Garden (minutes/day) vs activity log: r = 0.48, p < .0
17	Telephone Assessment of Physical Activity (TAPA) (Mayer et al., 2008)	None	vs RAPA: r=0.738, k=0.463 (Surgeon General's report) p= .001 vs CHAMPS: r=0.672, k=0.562 (Surgeon General's report) p= .001
18	Stanford 7-Day Recall to Assess Habitual Physical Activity (Richardson et al., 2001)	Total activity: r=0.60 (men), p>0.01, r=0.36 (women), p<0.05 Very hard: r=0.49 (men), p<0.05, r=0.57 (women), p<0.01 Hard: r=0.17 (men), r=0.16 (women) Moderate: r=0.52 (men), p<0.01, r=0.17 (women) Light: r=0.41 (men), p<0.05, r=0.55 (women), p<0.01 Sleep: r=0.34 9(men), r=0.66 (women), p<0.05	None
18	Stanford 7-Day Recall to Assess Habitual Physical Activity (Richardson et al., 2001)	Total activity: r=0.60 (men), p>0.01, r=0.36 (women), p<0.05 Very hard: r=0.49 (men), p<0.05, r=0.57 (women), p<0.01 Hard: r=0.17 (men), r=0.16 (women) Moderate: r=0.52 (men), p<0.01, r=0.17 (women) Light: r=0.41 (men), p<0.05, r=0.55 (women), p<0.01	None

Study	Measure	Reliability (test-retest)	Validity
		Sleep: r=0.34 9(men), r=0.66 (women), p<0.05	
18	Stanford 7-Day Recall to Assess Habitual Physical Activity (Richardson et al., 2001)	Total activity: r=0.60 (men), p>0.01, r=0.36 (women), p<0.05 Very hard: r=0.49 (men), p<0.05, r=0.57 (women), p<0.01 Hard: r=0.17 (men), r=0.16 (women) Moderate: r=0.52 (men), p<0.01, r=0.17 (women) Light: r=0.41 (men), p<0.05, r=0.55 (women), p<0.01 Sleep: r=0.34 9(men), r=0.66 (women), p<0.05	None
19	Stanford Brief Activity Survey (SBAS) (Taylor-Piliae et al., 2006)	None	Sensitivity=.73 Specificity=.61

Appendix 2. Examples of self-report and objective measures used in falls prevention trials

SR = Self-report, O = Objective measure

Study	Sample	Fear of falling	Number of falls/ fractures		Balance (leaning, sway, step-up ability)		Proprio-ception		Vision (acuity, edge-contrast sensitivity, perception)		Hearing ability		Strength (grip, knee, ankle, sit-stand ability)		Functional reach		Reaction time		Physical activity		Walking ability/ speed/ mobility		General health (CVD, QOL diabetes, stroke)		Medication use		Mental health : depression, cognitive fn, dementia		BMI		Use of health services		Physiological (blood pressure)	
		SR	SR	O	SR	O	SR	O	SR	O	SR	O	SR	O	SR	O	SR	O	SR	O	SR	O	SR	O	SR	O	SR	O	SR	O	SR	O	SR	O
Yardley & Nyman 2007 UK	N=280, aged 65-97yrs				x				x														x		x								
Suzuki et al 2004 (Japan)	N=52 females aged >73yrs		x			x							x	x		x						x							x			
Cumming et al 2008 (Australia)	N=3999, mean 79 yrs			x																		x		x		x							
Sakamoto et al 2006 (Japan)	N=553, aged 37-102, mean 81.6yr		x	x		x																		x									
Lord et al 2005 (Australia)	N=625, aged 75 yrs or more		x	x		x		x		x				x				x	x		x		x		x		x						
Voukelatos et al 2007 (Australia)	N=702, aged 60 yrs or more		x			x													x				x										
Liu-Ambrose et al 2008 (NZ)	N=70, aged >70 yrs		x			x				x				x				x	x			x	x			x		x					
Luukinen et al 2007 (Finland)	N=827; aged >85 yrs		x			x			x		x			x								x	x				x			x	x		x
Anstey et al 2008 (Australia)	N=787 aged >70 yrs		x			x				x				x		x							x				x						
Barnett et al 2003 (Australia)	N=163; aged >65; At-risk	x	x			x								x				x	x			x	x		x		x						

Physical activity

Q1. In the last week, how many times have you walked continuously for at least 10 minutes for recreation or exercise or to get to or from places?
1. _____ number of times [If = 0 → Q3]
X Don't know → Q3
R Refused → Q3

Q2. What do you estimate was the total time you spent walking in this way in the last week? [In hours and minutes]
1. _____ hours _____ minutes
X Don't know
R Refused

Q3. The next question excludes household chores or gardening. In the last week, how many times did you do any vigorous physical activity which made you breathe harder or puff and pant?
1. _____ number of times [If = 0 → Q5]
X Don't know → Q5
R Refused → Q5

Q4. What do you estimate was the total time you spent doing this vigorous physical activity in the last week? [In hours and minutes]
1. _____ hours _____ minutes
X Don't know
R Refused

Q5. This next question does not include household chores or gardening. In the last week, how many times did you do any other more moderate physical activity that you haven't already mentioned?
1. _____ number of times [If = 0 → Q7]
X Don't know → Q7
R Refused → Q7

Q6. What do you estimate was the total time that you spent doing these activities in the last week? [In hours and minutes]
1. _____ hours _____ minutes
X Don't know
R Refused

Q7. How do you usually get to work?
1. Train
2. Bicycle
3. Walk only
4. Walk part of the way
5. Bus
6. Ferry
7. Train
8. Tram (including light rail)
9. Taxi
10. Car (as driver)
11. Car (as passenger)
12. Truck
13. Motor bike or motor scooter
14. Other
X Don't know
R Refused

Q8. Does your neighbourhood have any of the following facilities:
1. Sporting fields
2. Public swimming pools
3. Parks or reserves

4. Footpaths
5. Bike paths
6. Other
X Don’t know
R Refused

Q9. How often do you use these facilities [ask for each facility]?
1. _____ times per day
2. _____ times per week
3. _____ times per month
4. Rarely or never
X Don’t know
R Refused

3/7/00

Questionnaire: SP
Target Group: SPs 2+

PHYSICAL ACTIVITY AND PHYSICAL FITNESS - PAQ

BOX 1A

CHECK ITEM PAQ.005:
IF SP AGE >= 16, CONTINUE.
OTHERWISE, GO TO BOX 6.

PAQ.020 The next series of questions are about physical activities that {you/SP} {have/has} done over the **past 30 days**. First I will ask about activities that are related to transportation. Then I'll ask about {your/his/her} daily activities, and finally, about physical activities that {you do/he/she does} in {your/his/her} leisure time.

Over the **past 30 days**, {have/has} {you/SP} walked or bicycled as part of getting to and from work, or school, or to do errands?

CODE 'UNABLE TO DO' ONLY IF RESPONDENT VOLUNTEERS

YES	1	
NO	2	(PAQ.100)
UNABLE TO DO ACTIVITY	3	(PAQ.100)
REFUSED	7	(PAQ.100)
DON'T KNOW	9	(PAQ.100)

PAQ.050 [Over the **past 30 days**], how often did {you/SP} do this? [Walk or bicycle as part of getting to and from work, or school, or to do errands.]
PROBE: How many times per day, per week, or per month did {you/s/he} do these activities?

|___|___|___|
ENTER NUMBER OF TIMES (PER DAY, WEEK OR MONTH)

REFUSED	777	(PAQ.100)
DON'T KNOW	999	(PAQ.100)

ENTER UNIT

DAY	1	
WEEK	2	
MONTH	3	
REFUSED	7	(PAQ.100)
DON'T KNOW	9	(PAQ.100)

PAQ.080 On those days when {you/SP} walked or bicycled, about how long did {you/s/he} spend altogether doing this?

|___|___|___|
ENTER NUMBER (OF MINUTES OR HOURS)

REFUSED 777
DON'T KNOW 999

ENTER UNIT

MINUTES 1
HOURS 2
REFUSED 7
DON'T KNOW 9

PAQ.100 Over the **past 30 days**, did {you/SP} do any tasks in or around {your/his/her} home or yard for **at least 10 minutes** that required moderate or greater physical effort? By moderate physical effort I mean, tasks that caused **light** sweating or a **slight to moderate increase** in {your/his/her} heart rate or breathing. [Such as raking leaves, mowing the lawn or heavy cleaning.]

CODE 'UNABLE TO DO' ONLY IF RESPONDENT VOLUNTEERS

YES 1
NO 2 (PAQ.180)
UNABLE TO DO ACTIVITY 3 (PAQ.180)
REFUSED 7 (PAQ.180)
DON'T KNOW 9 (PAQ.180)

PAQ.120 [Over the **past 30 days**], how often did {you/SP} do **these tasks** in or around {your/his/her} home or yard, that is tasks requiring at least moderate effort? [Such as raking leaves, mowing the lawn or heavy cleaning] **PROBE:** How many times per day, per week, or per month did {you/s/he} do these activities?

|___|___|___|
ENTER NUMBER OF TIMES (PER DAY, WEEK OR MONTH)

REFUSED 777 (PAQ.180)
DON'T KNOW 999 (PAQ.180)

ENTER UNIT

DAY 1
WEEK 2
MONTH 3
REFUSED 7 (PAQ.180)
DON'T KNOW 9 (PAQ.180)

PAQ.160 About how long did {you/SP} do these tasks **each time**?

IF MORE THAN 1 TASK, ASK FOR TASK DONE MOST OFTEN

|___|___|___|
ENTER NUMBER (OF MINUTES OR HOURS)

REFUSED 777
DON'T KNOW 999

ENTER UNIT

MINUTES 1
HOURS 2
REFUSED 7
DON'T KNOW 9

PAQ.180 Please tell me which of these four sentences **best** describes {your/SP's} usual daily activities? [Daily activities may include {your/his/her} work, housework if {you are/s/he is} a homemaker, going to and attending classes if {you are/s/he is} a student, and what {you/s/he} normally {do/does} throughout a typical day if {you are/he/she is} a retiree or unemployed.] . . .

HAND CARD PAQ1

{You sit/He/She sits} during the day and {do/does} not walk about very much; 1
{You stand or walk/He/She stands or walks} about quite a lot during the day, but {do/does} not have to carry or lift things very often; 2
{You lift or carry/He/She lifts or carries} light loads, or {have/has} to climb stairs or hills often; or 3
{You do/He/She does} heavy work or {carry/carries} heavy loads. 4
REFUSED 7
DON'T KNOW 9

PAQ.200 The next questions are about physical activities including exercise, sports, and physically active hobbies that {you/SP} may have done in {your/his/her} leisure time or at school over the **past 30 days**.

First I will ask you about **vigorous** activities that cause **heavy** sweating or **large increases** in breathing or heart rate. Then I will ask you about **moderate** activities that cause only **light** sweating or a **slight to moderate increase** in breathing or heart rate.

Over the **past 30 days**, did {you/SP} do any **vigorous** activities for **at least 10 minutes** that caused **heavy** sweating, or **large increases** in breathing or heart rate? Some examples are running, lap swimming, aerobics classes or fast bicycling.

CODE 'UNABLE TO DO' ONLY IF RESPONDENT VOLUNTEERS

YES 1
NO 2 (PAQ.320)
UNABLE TO DO ACTIVITY 3 (PAQ.320)
REFUSED 7 (PAQ.320)
DON'T KNOW 9 (PAQ.320)

PAQ.220 [Over the **past 30 days**], what vigorous activities did {you/SP} do?

CODE ALL THAT APPLY

AEROBICS	10
BASEBALL	11
BASKETBALL	12
BICYCLING	13
BOWLING	14
DANCE	15
FISHING	16
FOOTBALL	17
GARDENING	18
GOLF	19
HIKING	20
HOCKEY	21
HUNTING	22
JOGGING	23
KAYAKING	24
PUSH-UPS	25
RACQUETBALL	26
ROLLERBLADING	27
ROWING	28
RUNNING	29
SIT-UPS	30
SKATING	31
SKIING – CROSS COUNTRY (INCLUDING NORDIC TRACK)	32
SKIING – DOWNHILL	33
SOCCER	34
SOFTBALL	35
STAIR CLIMBING	36
STRETCHING	37
SWIMMING	38
TENNIS	39
TREADMILL	40
VOLLEYBALL	41
WALKING	42
WEIGHT LIFTING	43
YARD WORK	44
OTHER (SPECIFY) _____	45
OTHER (SPECIFY) _____	46
OTHER (SPECIFY) _____	47
REFUSED	77
DON'T KNOW	99

BOX 1B

LOOP 1:
ASK PAQ.280 AND PAQ.300 FOR EACH ACTIVITY ENTERED IN PAQ.220.

PAQ.280 [Over the **past 30 days**], how often did {you/SP} {ACTIVITY}?
PROBE: How many times per day, per week, or per month?

CAPI INSTRUCTION:
FILLS FOR ACTIVITY SHOULD BE AS FOLLOWS: 10. do aerobics, 11. play baseball, 12. play basketball, 13. bicycle, 14. bowl, 15. dance, 16. fish, 17. play football, 18. garden, 19. play golf, 20. hike, 21. play hockey, 22. hunt, 23. jog, 24. kayak, 25. do push-ups, 26. play racquetball, 27. rollerblade, 28. row, 29. run, 30. do sit-ups, 31. skate, 32. cross country ski (use the Nordic Track), 33. downhill ski, 34. play soccer, 35. play softball, 36. climb stairs, 37. stretch, 38. swim, 39. play tennis, 40. treadmill, 41. play volleyball, 42. walk, 43. lift weights, 44. do yard work, 45. DISPLAY ACTIVITY IN 'OTHER SPECIFY', 46. DISPLAY ACTIVITY IN 'OTHER SPECIFY', 47. DISPLAY ACTIVITY IN 'OTHER SPECIFY'.

|___|___|___|
ENTER NUMBER OF TIMES (PER DAY, WEEK OR MONTH)

REFUSED 777
DON'T KNOW 999

ENTER UNIT

DAY 1
WEEK 2
MONTH 3
REFUSED 7
DON'T KNOW 9

PAQ.300 [Over the **past 30 days**], on average about how long did {you/SP} {ACTIVITY} **each time**?

|___|___|___|
ENTER NUMBER (OF MINUTES OR HOURS)

REFUSED 777
DON'T KNOW 999

ENTER UNIT

MINUTES 1
HOURS 2
REFUSED 7
DON'T KNOW 9

BOX 2

END LOOP 1:
ASK PAQ.280 AND PAQ.300 FOR NEXT ACTIVITY.
IF NO NEXT ACTIVITY, CONTINUE WITH PAQ.320.

PAQ.320 [Over the **past 30 days**], did {you/SP} do **moderate** activities for **at least 10 minutes** that cause only **light** sweating or a **slight to moderate increase** in breathing or heart rate? Some examples are brisk walking, bicycling for pleasure, golf, or dancing.

CODE 'UNABLE TO DO' ONLY IF RESPONDENT VOLUNTEERS

YES	1	
NO	2	(PAQ.440)
UNABLE TO DO ACTIVITY	3	(PAQ.440)
REFUSED	7	(PAQ.440)
DON'T KNOW	9	(PAQ.440)

PAQ.340 [Over the past 30 days], what activity or activities did {you/SP} do?

CODE ALL THAT APPLY

AEROBICS	10	
BASEBALL	11	
BASKETBALL	12	
BICYCLING	13	
BOWLING	14	
DANCE	15	
FISHING	16	
FOOTBALL	17	
GARDENING	18	
GOLF	19	
HIKING	20	
HOCKEY	21	
HUNTING	22	
JOGGING	23	
KAYAKING	24	
PUSH-UPS	25	
RACQUETBALL	26	
ROLLERBLADING	27	
ROWING	28	
RUNNING	29	
SIT-UPS	30	
SKATING	31	
SKIING – CROSS COUNTRY (INCLUDE NORDIC TRACK)	32	
SKIING – DOWNHILL	33	
SOCCER	34	
SOFTBALL	35	
STAIR CLIMBING	36	
STRETCHING	37	
SWIMMING	38	
TENNIS	39	
TREADMILL	40	
VOLLEYBALL	41	
WALKING	42	
WEIGHT LIFTING	43	
YARD WORK	44	
OTHER (SPECIFY) _____	45	
OTHER (SPECIFY) _____	46	
OTHER (SPECIFY) _____	47	
REFUSED	77	(PAQ.440)
DON'T KNOW	99	(PAQ.440)

BOX 3

LOOP 2:
ASK PAQ.400 AND PAQ.420 FOR EACH ACTIVITY ENTERED IN PAQ.340.

PAQ.400 [Over the **past 30 days**], how often did {you/SP} {ACTIVITY}?
PROBE: How many times per day, per week, or per month?

CAPI INSTRUCTION:
FILLS FOR ACTIVITY SHOULD BE AS FOLLOWS: 10. do aerobics, 11. play baseball, 12. play basketball, 13. bicycle, 14. bowl, 15. dance, 16. fish, 17. play football, 18. garden, 19. play golf, 20. hike, 21. play hockey, 22. hunt, 23. jog, 24. kayak, 25. do push-ups, 26. play racquetball, 27. rollerblade, 28. row, 29. run, 30. do sit-ups, 31. skate, 32. cross country ski (use the Nordic Track), 33. downhill ski, 34. play soccer, 35. play softball, 36. climb stairs, 37. stretch, 38. swim, 39. play tennis, 40. treadmill, 41. play volleyball, 42. walk, 43. lift weights, 44. do yard work, 45. DISPLAY ACTIVITY IN 'OTHER SPECIFY', 46. DISPLAY ACTIVITY IN 'OTHER SPECIFY', 47. DISPLAY ACTIVITY IN 'OTHER SPECIFY'.

|___|___|___|
ENTER NUMBER OF TIMES (PER DAY, WEEK OR MONTH)

REFUSED 777
DON'T KNOW 999

ENTER UNIT

DAY 1
WEEK 2
MONTH 3
REFUSED 7
DON'T KNOW 9

PAQ.420 [Over the **past 30 days**], on average about how long did {you/SP} {ACTIVITY} **each time**?

|___|___|___|
ENTER NUMBER (OF MINUTES OR HOURS)

REFUSED 777
DON'T KNOW 999

ENTER UNIT

MINUTES 1
HOURS 2
REFUSED 7
DON'T KNOW 9

BOX 4

END LOOP 2:
ASK PAQ.400 AND PAQ.420 FOR NEXT ACTIVITY.
IF NO NEXT ACTIVITY, CONTINUE WITH PAQ.440.

PAQ.440 Over the **past 30 days**, did {you/SP} do any physical activities specifically designed to **strengthen** {your/his/her} muscles such as lifting weights, push-ups or sit-ups? Include all such activities even if you have mentioned them before.

CODE 'UNABLE TO DO' ONLY IF RESPONDENT VOLUNTEERS

YES	1	
NO	2	(PAQ.480)
UNABLE TO DO ACTIVITY	3	(PAQ.480)
REFUSED	7	(PAQ.480)
DON'T KNOW	9	(PAQ.480)

PAQ.460 [Over the **past 30 days**], how often did {you/SP} do these physical activities? [Activities designed to strengthen {your/his/her} muscles such as lifting weights, push-ups or sit-ups.]

|___|___|___|
ENTER NUMBER OF TIMES (PER DAY, WEEK OR MONTH)

REFUSED	777
DON'T KNOW	999

ENTER UNIT

DAY	1
WEEK	2
MONTH	3
REFUSED	7
DON'T KNOW	9

PAQ.480 Now I will ask about TV watching or computer use.

Over the **past 30 days**, on a **typical day** how much time altogether did {you/SP} spend sitting and watching TV or videos or using a computer **outside of work**? Would you say . . .

less than 1 hour,	0
1 hour,	1
2 hours,	2
3 hours,	3
4 hours,	4
5 hours or more, or	5
{you do/s/he does} not watch TV or videos or use a computer outside of work?	6
REFUSED	7
DON'T KNOW	9

PAQ.500 How does the amount of activity that you reported {for SP} for the **past 30 days** compare with {your/his/her} physical activity for the **past 12 months**? Over the **past 30 days**, {were you/was he/she} . . .

more active,	1
less active, or	2
about the same?	3
REFUSED	7
DON'T KNOW	9

PAQ.520 Compared with most {men/boys/women/girls} {your/SP's} age, would you say that {you are/s/he is} . . .

more active,	1
less active, or	2
about the same?	3
REFUSED	7
DON'T KNOW	9

BOX 5

CHECK ITEM PAQ.530:
IF SP AGE >= 30, CONTINUE WITH PAQ.540.
OTHERWISE, GO TO BOX 6.

PAQ.540 Compared with {yourself/himself/herself} **10 years ago**, would you say that {you are/SP is} . . .

more active now,	1
less active now, or	2
about the same?	3
REFUSED	7
DON'T KNOW	9

BOX 6

CHECK ITEM PAQ.550:
IF SP AGE = 2-11, CONTINUE.
OTHERWISE, GO TO END OF SECTION.

PAQ.560 Now I'd like to ask you some questions about {SP's} activities.

How many times per week {does SP} play or exercise enough to make {him/her} **sweat** and **breathe hard**?

IF NEVER, ENTER 0
IF LESS THAN ONCE PER WEEK, ENTER 1

|___|___|
ENTER NUMBER OF TIMES

REFUSED	77
DON'T KNOW	99

PAQ.575 About how many hours did {SP} sit and watch TV or videos yesterday? Would you say . . .

less than 1 hour,	0
1 hour,	1
2 hours,	2
3 hours,	3
4 hours, or	4
5 hours or more?	5
NONE	6
REFUSED	7
DON'T KNOW	9

PAQ.580 About how many hours did {SP} use a computer or play computer games yesterday? Would you say . . .

less than 1 hour,	0
1 hour,	1
2 hours,	2
3 hours,	3
4 hours, or	4
5 hours or more?	5
NONE	6
REFUSED	7
DON'T KNOW	9

10/7/98

Questionnaire: SP
Target Group: SPs 40+

BALANCE - BAQ

BAQ.010 During the **past 12 months**, {have you/has SP} had dizziness, difficulty with balance or difficulty with falling?

YES	1	
NO	2	(BAQ.070)
REFUSED	7	(BAQ.070)
DON'T KNOW	9	(BAQ.070)

BAQ.020 Which of these problems {have you/has SP} had . . . CAPI INSTRUCTION: TEXT OF QUESTION SHOULD BE OPTIONAL AFTER THE FIRST TIME.	BAQ.030 How long did the . . . last? Would you say less than 2 weeks, 2 weeks to 3 months or more than 3 months?
a. dizziness? YES . . . . . 1 NO . . . . . 2 (b) REFUSED . . . 7 (b) DON'T KNOW 9 (b)	dizziness LESS THAN 2 WEEKS . . . . . 1 2 WEEKS TO 3 MONTHS . . . . . 2 MORE THAN 3 MONTHS . . . . . 3 REFUSED . . . . . 7 DON'T KNOW 9
b. difficulty with balance? YES . . . . . 1 NO . . . . . 2 (c) REFUSED . . . 7 (c) DON'T KNOW 9 (c)	difficulty with balance LESS THAN 2 WEEKS . . . . . 1 2 WEEKS TO 3 MONTHS . . . . . 2 MORE THAN 3 MONTHS . . . . . 3 REFUSED . . . . . 7 DON'T KNOW 9
c. difficulty with falling? YES . . . . . 1 NO . . . . . 2 REFUSED . . . 7 DON'T KNOW 9	

BAQ.040 {Do you/Does SP} get dizzy when {you/s/he} turn{s} over in bed?

YES	1
NO	2
REFUSED	7
DON'T KNOW	9

BOX 1

CHECK ITEM BAQ.050:
IF YES (CODE 1) IN BAQ.020 A OR B, CONTINUE.
OTHERWISE, GO TO BAQ.070.

BAQ.060 Which of the things on this list, if any, were related to {your/SP's} dizziness or balance problem?

CODE ALL THAT APPLY
HAND CARD BAQ1

A COLD OR THE FLU	1
INJURIES OR ACCIDENTS	2
USE OF DRUGS OR MEDICATIONS	3
AGE OR GETTING OLDER	4
SURGERY	5
HEARING PROBLEMS – INCLUDING RINGING IN THE EARS	6
VISION OR SEEING PROBLEMS	7
NONE	8
REFUSED	77
DON'T KNOW	99

BAQ.070 {Have you/Has SP} **ever** been treated by a doctor or other health professional for dizziness, a balance problem, or falling?

YES	1	
NO	2	(BAQ.100)
REFUSED	7	(BAQ.100)
DON'T KNOW	9	(BAQ.100)

BAQ.075 How long ago {were you/was SP} treated? Would you say . . .

less than 1 year ago,	1
1 year to 5 years ago, or	2
5 years or more ago?	3
REFUSED	7
DON'T KNOW	9

BAQ.080 Did this treatment involve. . .

RESPONSES: YES = 1, NO = 2, REFUSED = 7, DON'T KNOW = 9.

CAPI INSTRUCTION:
TEXT SHOULD BE OPTIONAL [ ] AFTER FIRST ITEM.

a. **medication**? ____
b. **surgery to the ear**? ____
c. **some other type of surgery**? ____
d. **exercises or physical therapy**? ____

BAQ.090 As a result of this treatment, did {your/SP's} condition. . .

get better,	1
get worse, or	2
stay the same?	3
REFUSED	7
DON'T KNOW	9

BAQ.100 Have any of {your/SP's} biological, that is, **blood** relatives (grandparents, parents, brothers, or sisters) had a problem with dizziness, balance, or falling **not** related to aging?

YES	1
NO	2
REFUSED	7
DON'T KNOW	9

3.4 Behavioral Risk Factor Surveillance System Questionnaire: Physical Activity

16.5 How often do you eat carrots?

(177-179)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

16.6 Not counting carrots, potatoes, or salad, how many servings of vegetables do you usually eat? (Example: A serving of vegetables at both lunch and dinner would be two servings.)

(180-182)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

Section 17: Physical Activity

CATI note: If Core Q12.9 = 1 (employed for wages) or 2 (self-employed) then continue. Otherwise, Go to Q17.2.

17.1 When you are at work, which of the following best describes what you do? Would you say—

(183)

If respondent has multiple jobs, include all jobs.

Please read:

1 Mostly sitting or standing
2 Mostly walking
3 Mostly heavy labor or physically demanding work

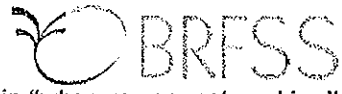
Do not read:

7 Don't know / Not sure
9 Refused

Please read:

We are interested in two types of physical activity - vigorous and moderate. Vigorous activities cause large increases in breathing or heart rate while moderate activities cause small increases in breathing or heart rate.

3.4 Behavioral Risk Factor Surveillance System Questionnaire: Physical Activity



17.2 Now, thinking about the moderate activities you do **[fill in "when you are not working" if "employed" or self-employed"]** in a usual week, do you do moderate activities for at least 10 minutes at a time, such as brisk walking, bicycling, vacuuming, gardening, or anything else that causes some increase in breathing or heart rate?

(184)

1	Yes	
2	No	**[Go to Q17.5]**
7	Don't know / Not sure	**[Go to Q17.5]**
9	Refused	**[Go to Q17.5]**

17.3 How many days per week do you do these moderate activities for at least 10 minutes at a time?

(185-186)

_ _	Days per week	
8 8	Do not do any moderate physical activity for at least 10 minutes at a time?	**[Go to Q17.5]**
7 7	Don't know / Not sure	**[Go to Q17.5]**
9 9	Refused	**[Go to Q17.5]**

17.4 On days when you do moderate activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

(187-189)

_ _:_ _	Hours and minutes per day
7 7 7	Don't know / Not sure
9 9 9	Refused

17.5 Now, thinking about the vigorous activities you do **[fill in "when you are not working" if "employed" or "self-employed"]** in a usual week, do you do vigorous activities for at least 10 minutes at a time, such as running, aerobics, heavy yard work, or anything else that causes large increases in breathing or heart rate?

(190)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

17.6 How many days per week do you do these vigorous activities for at least 10 minutes at a time?

(191-192)

_ _	Days per week	
8 8	Do not do any vigorous physical activity for at least 10 minutes at a time	**[Go to next section]**
7 7	Don't know / Not sure	**[Go to next section]**
9 9	Refused	**[Go to next section]**

3.4 Behavioral Risk Factor Surveillance System Questionnaire: Physical Activity

17.7 On days when you do vigorous activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

(193-195)

_:_ _	Hours and minutes per day
7 7 7	Don't know / Not sure
9 9 9	Refused

Section 18: HIV/AIDS

CATI note: If respondent is 65 years old or older, go to next section.

The next few questions are about the national health problem of HIV, the virus that causes AIDS. Please remember that your answers are strictly confidential and that you don't have to answer every question if you do not want to. Although we will ask you about testing, we will not ask you about the results of any test you may have had.

18.1 Have you ever been tested for HIV? Do not count tests you may have had as part of a blood donation. Include testing fluid from your mouth.

(196)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not Sure	**[Go to next section]**
9	Refused	**[Go to next section]**

18.2 Not including blood donations, in what month and year was your last HIV test?

(197-202)

NOTE: If response is before January 1985, code "Don't know."

CATI INSTRUCTION: If the respondent remembers the year but cannot remember the month, code the first two digits 77 and the last four digits for the year.

_ _/_ _ _ _	Code month and year
7 7/7 7 7 7	Don't know / Not sure
9 9/9 9 9 9	Refused

DATA LAYOUT - STATE-ADDED QUESTIONS Page 1
FOR 2000 BRFSS QUESTIONNAIRE Date 9 /20/00
(Arizona)
For those states selecting the standardized Disability Module, it is located in columns 371-393.

Field Size	Columns (beginning with 400; not to exceed 599)	Question	Response Categories (Code = Response)
State Added Questions - Immunization (Influenza Vaccination)			
1	400	IMM1. During the past 12 months, have you had a flu shot?	Yes 1 No 2 Don't know/Not sure 7 Refused 9
1	401	If IMM1 is yes, then ask IMM1A: Did you get the shot before the end of 2000 or after the beginning of 2001?	2000 1 2001 **Go to IMM1B** 2 Don't know/Not Sure 7 Refused 9
1	402	IMM1B. At what kind of place did you get your last flu shot?	Doctor's office or Health Maintenance Organization a A Health Department b Another type of clinic or health center c A Senior, Recreation or Community Center d A Store [Examples: supermarket, drug store] e A Hospital or Emergency Room f Workplace g Other [specify] h Don't know/Not sure 7 Refused 9
1	403	If IMM1 is no, then ask IMM1C: What is the main reason yo didn't get a flu shot {during the past 12 months}?	Didn't know I needed it a Doctor didn't recommend it b Didn't think of it/forgot/missed it c Tried to get a flu shot, but no flu shots were available d Tried to get a flu shot, but my doctor said I didn't need it e Didn't think it would work f Don't need a flu shot/not at risk/flu not

Field Size	Columns (beginning with 400; not to exceed 599)	Question	Response Categories (Code = Response)
			serious g Shot could give me the flu/allergic reaction/other health problem h Doctor recommended against getting the shot/allergic to shot/medical reasons i Don't like shots or needles/don't want it j Other [specify] Refused 9
State Added Questions - Mental Health			
1	405	The next few questions are about mental health. Please remember that your answers are strictly confidential and that you don't have to answer any question if you don't want to. MENT1 During the past year, would you say that you experienced:	A lot of stress 1 A moderate amount of stress 2 Relatively little stress 3 Almost no stress at all 4 Don't know/Not sure 7 Refused 9
1	406	MENT2 In the past year, how much effect has stress had on your health:	A lot 1 Some 2 Hardly any 3 None 4 Don't know/Not sure 7 Refused 9
1	407	MENT3 In the past year, did you think about seeking help for any personal or emotional problem from family or friends?	Yes 1 No 2 Don't know/Not sure 7 Refused 9
1	408	MENT4 From a helping professional or self-help group?	Yes 1 No 2 Don't know/Not sure 7 Refused 9
1	409	If MENT3 and/or MENT4 is yes, then ask MENT4A:	Yes 1 No 2

Field Size	Columns (beginning with 400; not to exceed 599)	Question	Response Categories (Code = Response)
		MENT4A Did you actually seek any help?	Don't know/Not sure 7 Refused 9
1	410	MENT5 During the past 12 months, did your worksite offer any information or activities concerning stress management?	Yes GO TO MENT5A 1 No GO TO MENT6 2 Don't know/Not sure GO TO MENT6 7 Refused GO TO MENT6 9
1	411	MENT5A Which of the following were offered relating to stress management:?	Individual classes 1 Group classes 2 Resource materials, such as posters, brochures, pamphlets or videos 3 Job redesign, personnel reassignments 4 Don't know/Not sure 7 Refused 9
1	412	MENT6 During the past 12 months, did you have - a. Schizophrenia?	Yes 1 No 2 Don't know/Not sure 7 Refused 9
1	413	b. Paranoid or delusional disorder, other than schizophrenia	Yes 1 No 2 Don't know/Not sure 7 Refused 9
1	414	c. Manic episodes or manic depression, also called bipolar disorder	Yes 1 No 2 Don't know/Not sure 7 Refused 9
1	415	d. Major depression? Major depression is a depressed mood and loss of interest in almost all activities for at least 2 weeks?	Yes 1 No 2 Don't know/Not sure 7 Refused 9
1	416	e. Anti-social personality, obsessive-compulsive personality or any other severe	Yes 1 No 2

Field Size	Columns (beginning with 400; not to exceed 599)	Question	Response Categories (Code = Response)
		personality disorder?	Don't know/Not sure 7 Refused 9
1	417	f. Alzheimer's disease or another type of senile disorder?	Yes 1 No 2 Don't know/Not sure 7 Refused 9
1	418	g. Alcohol abuse disorder?	Yes 1 No 2 Don't know/Not sure 7 Refused 9
1	419	h. Drug abuse disorder?	Yes 1 No 2 Don't know/Not sure 7 Refused 9
1	420	If "yes" to one or more "a" through "h" above answer the next three (3) questions. If "no", "DK/NS", or "refused" to any or all of "a" through "h" then skip to MENT10. MENT7 Because of (this/any of these) mental or emotional problem(s) are you unable to work or limited in the kind of work or activity you can do?	Yes 1 No 2 Don't know/Not sure 7 Refused 9
State Added Questions - Osteoporosis - Ask women only			
1	421	OSTEO1 Thinking back over the past month, how many servings of milk or milk products do you usually consume each day? One serving equals 8 ounces of milk or yogurt, or two slices of cheese.	Less than 1 0 1 serving 1 2 servings 2 3 servings 3 4 servings 4 5 servings or more 5 Don't consume milk or milk products 6 Don't know/not sure 7

Field Size	Columns (beginning with 400; not to exceed 599)	Question	Response Categories (Code = Response)
			Refused 9
1	422	OSTEO2 During the past month, did you regularly take any supplements containing only calcium?	Yes 1 No 2 Don't know/Not sure 7 Refused 9
1	423	OSTEO3 How often do you take calcium supplements?	a. Per day 1 b. Per week 2 c. Per month 3 d. Per year 4 e. Never 5 5 5 Don't know/Not sure 7 7 7 Refused 9 9 9
1	424	OSTEO4 How often do you do strength building exercises, like lifting free weights, use weight training machines, or pushups or pullups?	a. Per day 1 b. Per week 2 c. Per month 3 d. Per year 4 e. Never 5 5 5 Don't know/Not sure 7 7 7 Refused 9 9 9
1	425	OSTEO5 Have you ever been tested for osteoporosis by having a bone density scan which is a test that scans and measures your bones, similar to an x-ray?	Yes 1 No 2 Don't know/Not sure 7 Refused 9

NOTE: YOU MUST PLACE THE NUMBER ONE (1) IN POSITION 765.

C:\My Documents\stlay01_AZ.wpd

CHAMPS Activities Questionnaire for Older Adults

Date:_____

Name or ID:_____

CHAMPS: Community Healthy Activities Model Program for Seniors
Institute for Health & Aging, University of California San Francisco
Stanford Center for Research in Disease Prevention, Stanford University

Contact: Anita L. Stewart, Ph.D., UCSF, anitast@itsa.ucsf.edu

This questionnaire is about activities that you may have done in the past 4 weeks. The questions on the following pages are similar to the example shown below.

INSTRUCTIONS

If you DID the activity in the past 4 weeks:

Step #1 Check the YES box.

Step #2 Think about <u>how many</u> TIMES <u>a week</u> you usually did it, and write your response in the space provided.

Step #3 Circle how many TOTAL HOURS <u>in a typical week</u> you did the activity.

Here is an example of how Mrs. Jones would answer question #1: Mrs. Jones usually visits her friends Maria and Olga <u>twice a week</u>. She usually spends <u>one</u> hour on Monday with Maria and <u>two</u> hours on Wednesday with Olga. Therefore, the total hours a week that she visits with friends is <u>3</u> hours a week.

In a typical week during the past 4 weeks, did you…							
1. Visit with friends or family (other than those you live with)? ☒ **YES** How many TIMES a week? 2 ➔ ☐ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	(3-4½ hours)	5-6½ hours	7-8½ hours	9 or more hours

If you DID NOT do the activity:

- **Check the NO box and move to the next question**

In a typical week during the past 4 weeks, did you …							
1. Visit with friends or family (other than those you live with)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
2. Go to the senior center? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
3. Do volunteer work? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
4. Attend church or take part in church activities? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
5. Attend other club or group meetings? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
6. Use a computer? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours

In a typical week during the past 4 weeks, did you …							
7. Dance (such as square, folk, line, ballroom) (do not count aerobic dance here)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL hours a week did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
8. Do woodworking, needlework, drawing, or other arts or crafts? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL hours a week did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
9. Play golf, carrying or pulling your equipment (count walking time only)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL hours a week did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
10. Play golf, riding a cart (count walking time only)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL hours a week did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
11. Attend a concert, movie, lecture, or sport event? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL hours a week did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
12. Play cards, bingo, or board games with other people? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL hours a week did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours

In a typical week during the past 4 weeks, did you …							
13. Shoot pool or billiards? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
14. Play singles tennis (do <u>not</u> count doubles)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
15. Play doubles tennis (do <u>not</u> count singles)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
16. Skate (ice, roller, in-line)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
17. Play a musical instrument? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
18. Read? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
19. Do heavy work around the house (such as washing windows, cleaning gutters)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours

In a typical week during the past 4 weeks, did you …							
20. Do light work around the house (such as sweeping or vacuuming)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
21. Do heavy gardening (such as spading, raking)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
22. Do light gardening (such as watering plants)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
23. Work on your car, truck, lawn mower, or other machinery? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours

****Please note: For the following questions about running and walking, include use of a treadmill.**

24. Jog or run? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
25. Walk uphill or hike uphill (count only uphill part)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours

In a typical week during the past 4 weeks, did you …							
26. Walk <u>fast or briskly</u> for exercise (do <u>not</u> count walking leisurely or uphill)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
27. Walk <u>to do errands</u> (such as to/from a store or to take children to school <u>(count walk time only)</u>? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
28. Walk <u>leisurely</u> for exercise or pleasure? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
29. Ride a bicycle or stationary cycle? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
30. Do other aerobic machines such as rowing, or step machines (do <u>not</u> count treadmill or stationary cycle)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
31. Do water exercises (do <u>not</u> count other swimming)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours

In a typical week during the past 4 weeks, did you …							
32. Swim moderately or fast? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
33. Swim gently? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
34. Do stretching or flexibility exercises (do <u>not</u> count yoga or Tai-chi)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
35. Do yoga or Tai-chi? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
36. Do aerobics or aerobic dancing? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
37. Do moderate to heavy strength training (such as hand-held weights of <u>more than 5 lbs</u>., weight machines, or push-ups)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL <u>hours a week</u> did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours

In a typical week during the past 4 weeks, did you …							
38. Do light strength training (such as hand-held weights of 5 lbs. or less or elastic bands)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL hours a week did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
39. Do general conditioning exercises, such as light calisthenics or chair exercises (do not count strength training)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL hours a week did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
40. Play basketball, soccer, or racquetball (do not count time on sidelines)? **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL hours a week did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours
41. Do other types of physical activity not previously mentioned (please specify)? _____ **YES** How many TIMES a week?_____ ➔ **NO**	How many TOTAL hours a week did you usually do it? ➔	Less than 1 hour	1-2½ hours	3-4½ hours	5-6½ hours	7-8½ hours	9 or more hours

Thank You

The Centre for STRONG Medicine

Name : _____
Date : _____
☐ baseline ☐ _____ months

Physical Activity Scale for the Elderly And Paffenbarger Physical Activity Index

LEISURE TIME ACTIVITIES

1. Over the past 7 days, how often did you participate in sitting activities such as reading, watching TV or doing handcrafts?

[0] never → Go to Q.2
[1] seldom (1-2 days)
[2] sometimes (3-4 days)
[3] often (5-7 days)

1a. What were these activities?
_____

1b. On average, how many hours per day did you engage in these sitting activities <u>on these days</u>?
[1] less than 1 hour [2] 1 but less than 2 hours
[3] 2 – 4 hours [4] more than 4 hours

2. Over the past 7 days, how often did you take a walk outside your home or yard for any reason? For example for fun or exercise, walking to work, walking the dog etc?

[0] never → Go to Q.3
[1] seldom (1-2 days)
[2] sometimes (3-4 days)
[3] often (5-7 days)

2a. On average, how many hours per day did you spend walking <u>on these days</u>?
[1] less than 1 hour [2] 1 but less than 2 hours
[3] 2 – 4 hours [4] more than 4 hours

b) What was the **<u>total</u>** distance (kms/miles/blocks) that you walked in the past 7 days? (1 mile = 12 blocks: 1km = 0.625miles).

<u>Total</u> number of blocks walked in the past **week** _____, or km _____, or miles _____

[1] less than 1 mile
[2] 0ne but less than 2 miles
[3[two to 4 miles
[4] more than 4 miles

3. How many flights of stairs did you **<u>climb up</u>** in the past 7 days? (one flight = 10 steps)
<u>Total</u> number of steps climbed in the past **week** _____, or flights of steps _____.
[1] less than 1 flight
[2] 0ne but less than 2 flights
[3] two to 4 flights
[4] more than 4 flights

4. Over the past 7 days, how often did you engage in **light** sport or recreational activities such as 'light' cycling on an exercise bike, lawn bowls, bowling, water aerobics, golf with a cart, yoga, tai chi, fishing from a boat or pier or other similar activities?

[0] never → Go to Q.4

[1] seldom (1-2 days) / [2] sometimes (3-4 days) / [3] often (5-7 days)

3a. What were these activities?

_____

3b. On average, how many hours per day did you engage in these light sport or recreational activities on these days?

[1] less than 1 hour
[2] 1 but less than 2 hours
[3] 2 – 4 hours
[4] more than 4 hours

5. Over the past 7 days, how often did you engage in **moderate** sport or recreational activities such as doubles tennis, ballroom dancing, golf without a cart, softball or other similar activities?

[0] never → Go to Q.5

[1] seldom (1-2 days) / [2] sometimes (3-4 days) / [3] often (5-7 days)

4a. What were these activities?

_____

4b. On average, how many hours per day did you engage in these moderate sport or recreational activities on these days?

[1] less than 1 hour
[2] 1 but less than 2 hours
[3] 2 – 4 hours
[4] more than 4 hours

6. Over the past 7 days, how often did you engage in **strenuous** sport and recreational activities such as jogging, swimming, cycling, singles tennis, aerobic dance, skiing (downhill or cross country) or other similar activities?

[0] never → Go to Q.6

[1] seldom (1-2 days) / [2] sometimes (3-4 days) / [3] often (5-7 days)

5a. What were these activities?

_____

5b. On average, how many hours per day did you engage in these strenuous sport or recreational activities on these days?

[1] less than 1 hour
[2] 1 but less than 2 hours
[3] 2 – 4 hours
[4] more than 4 hours

7. Over the past 7 days, how often did you exercise specifically to increase muscle strength and endurance such as lifting weights or pushups etc?

[0] never → Go to Q.7

[1] seldom (1-2 days) → 6a. What were these activities? _____

[2] sometimes (3-4 days) → 6b. On average, how many hours per day did you engage in exercise to increase muscle strength/endurance on these days?
[1] less than 1 hour [2] 1 but less than 2 hours
[3] 2 – 4 hours [4] more than 4 hours

[3] often (5-7 days)

HOUSEHOLD ACTIVITIES

8. During the past 7 days, have you done any light housework such as dusting or washing dishes?
[1] No [2] Yes

9. During the past 7 days, have you done any heavy housework or chores such as vacuuming, scrubbing floors, washing windows or carrying wood?
[1] No [2] Yes

10. During the past 7 days, did you engage in any of the following activities?

	No	Yes
a. Home repairs like painting, wallpapering, electrical etc	0	1
b. Lawn work or yard care including snow or leaf removal, wood chopping etc	0	1
c. Outdoor gardening	0	1
d. Caring for another person such as a dependent child, dependent spouse or another adult	0	1

WORK-RELATED ACTIVITIES

11. During the past 7 days did you work for pay or as a volunteer?
[1] No [2] Yes

10a. How many hours per week did you work for pay and/or as a volunteer? _____hours
10b. Which of the following categories best describes the amount of physical activity required on your job and /or volunteer work?
(1) Mainly sitting with light arm movements (eg. Office work, watch maker, seated assembly line worker, bus driver etc)
(2) Sitting or standing with some walking (eg. Cashier, general office worker, light tool and machinery worker)
(3) Walking with some handling of materials generally weighing less than 50 pounds (eg. Mailman, waitress, construction worker, heavy tool and machinery worker)
(4) Walking and heavy manual work often requiring handling of materials weighing over 50 pounds (eg. Lumberjack, stone mason, farm or general labourer.

PASE Score

PASE Activity	Score	PASE weight	PASE score
Muscle strength/endurance*	h/d	30	
Strenuous sports*	h/d	23	
Moderate sports*	h/d	23	
Light sports*	h/d	21	
Job involving standing/walking*	h/d	21	
Walking*	h/d	20	
Lawn work or yard care		36	
Caring for another person		35	
Home repairs		30	
Heavy housework		25	
Light housework		25	
Outdoor-gardening		20	
PASE Total			

* determine the average number of hours/day (h/d) over the 7-day period
1= engaged in activity during the previous 7 days
0= did not engage in activity during the previous 7 days

Paffenbarger Score

	Blocks walked	X	8 kcal / block	=	kcal
	Flights climbed	X	4 kcal / flight	=	kcal
	Minutes light sport/recreation	X	5 kcal / min	=	kcal
	Minutes moderate sport/ recreation or muscle strength	X	7.5 kcal / min	=	kcal
	Minutes heavy sport/ recreation	x	10 kcal / min	=	kcal
				Total	**kcal / week**

ID #:_____ Date:_____

Stanford Seven-Day Physical Activity Recall

Instructions:
This questionnaire is called the Seven-Day Physical Activity Recall. The information from it will be used to estimate the number of calories you burn up through physical activity.

1:
On the average, how many hours did you sleep each night during the last five weekday nights, Sunday through Thursday?

Enter a numeric value (0 if not applicable) ___ ___ . ___

2:
On the average, how many hours did you sleep each night last Friday and Saturday nights?

Enter a numeric value (0 if not applicable) ___ ___ . ___

3:
How many hours did you spend during the last five weekdays doing these moderate activities or others like them?

Enter a numeric value (0 if not applicable) ___ ___ . ___

4:
How many hours did you spend last Saturday and Sunday doing these moderate activities?

Enter a numeric value (0 if not applicable) ___ ___ . ___

5:
How many hours did you spend during the last five weekdays doing these hard activities or others like them?

Enter a numeric value (0 if not applicable) ___ ___ . ___

6:
How many hours did you spend last Saturday and Sunday doing these hard activities?

Enter a numeric value (0 if not applicable) ___ ___ . ___

7:
How many hours did you spend the last five weekdays doing these very hard activities, or others like them?

Enter a numeric value (0 if not applicable) ___ ___ . ___

ID #:_____ Date:_____

8:
How many hours did you spend last Saturday and Sunday doing these very hard activities?

Enter a numeric value (0 if not applicable) ___ ___ . ___

9:
Were you employed outside the home during the last seven days? If no, put zeros for questions 9-13. If yes, how many days?

Enter a numeric value (0 if not applicable) ___ ___ . ___

10:
How many hours per day?

Enter a numeric value (0 if not applicable) ___ ___ . ___

11:
How many of these hours per day were spent doing moderate activities?

Enter a numeric value (0 if not applicable) ___ ___ . ___

12:
How many of these hours per day were spent doing hard activities?

Enter a numeric value (0 if not applicable) ___ ___ . ___

13:
How many of these hours per day were spent doing very hard activities?

Enter a numeric value (0 if not applicable) ___ ___ . ___

14:
Compared to your physical activity over the past three months, was last week's physical activity more, less, or about the same?

1-More 2-Less 3-About the same

ID #:_____

Moderate Activities (3-5 METs)

These activities involve modest increases in heart rate & breathing—e.g., many household & home repair tasks.

- Calisthenics without weights
- Carpentry
- Cleaning, heavy (such as vacuuming, sweeping)
- Croquet
- Cycling—leisure, 5.5 mph mild
- Electrical work
- Feeding farm animals, manual milking
- Fencing
- Forestry—slow ax chopping, power sawing, stacking firewood, weeding
- Frisbee playing
- Gardening—hedging, raking, planting, mowing
- Golf—no power cart
- Gymnastics
- Horseback riding
- Locksmith
- Machine tooling—lath, punch press, tapping & drilling, welding
- Mopping floor
- Motor-cross
- Mowing lawn—push & power mower
- Music—playing drums
- Painting—outside
- Planting seedlings
- Plastering
- Sailing & board sailing
- Scraping Paint
- Stock clerking
- Surfing
- Sweeping
- Swimming—mild
- Grocery shopping
- Table tennis
- Laundry—heavy
- Childcare
- Window cleaning
- Walking on firm level surface, 3-4 mph – Average to fairly brisk
- Yoga
- Tai-chi
- Bowling
- Horse shoes
- Grocery shopping
- Heavy cooking

Hard Activities (5.1-6.9 METs)

Most people will have noticeable increases in breathing and will likely perspire—e.g., vigorous household, home repair and gardening tasks, heavy industrial work, and some construction and vigorous sports.

- Aerobic Dance
- Badminton
- Climbing hills with no load
- Coal shoveling
- Cycling—leisure, 9.4 mph (moderate)
- Farming—shoveling grain
- Fast Walking
- Folk Dancing
- Forestry—hoeing, planting by hand
- Karate or Judo
- Roller skating
- Scrubbing floors
- Skiing, water or downhill
- Tennis, doubles
- Walking on level Brisk or striding, firm surface @ 4.5 mph
- Weight lifting or training (count only lifting time)
- Swimming—moderate

Very Hard Activities (>7.0 METs)

These include strenuous sports involving a lot of movement and running. Very few household or occupational tasks are included, except carrying heavy loads, digging or chopping with heavy tools, or other similar hard physical labor.

- Boxing—in ring, sparring
- Circuit training
- Climbing hills with 5-20 kg load
- Cycling, racing (intensive)
- Digging ditches
- Farming—barn cleaning
- Field hockey
- Football
- Forestry—fast ax chopping, barking trees, carrying logs, sawing by hand
- Gardening, digging
- Marching, rapid
- Raquetball
- Rope jumping
- Running, jogging—cross country, 6-10 min/mile
- Skiing, cross country
- Skindiving as frogman, moderate motion
- Soccer
- Squash
- Swimming, continuous-intensive
- Tennis, singles

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SPECIAL TOPIC

Developing a Telephone Assessment of Physical Activity (TAPA) Questionnaire for Older Adults

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PEER REVIEWED

Abstract

Introduction

We report on development and preliminary validation of a brief, telephone-based measurement tool for assessing physical activity in older adults. The Telephone Assessment of Physical Activity (TAPA) questionnaire is based on the University of Washington Health Promotion Research Center's Rapid Assessment of Physical Activity (RAPA), a written questionnaire.

Methods

The Rapid Assessment of Physical Activity questionnaire was modified to permit interviewers to administer it as a telephone interview. We retained its scoring levels and interpretation. The pilot test of the telephone version assessed the questionnaire's ease of administration and construct validity in a community-based sample of older adults. Spearman rho and kappa statistics were computed for comparison with the Rapid Assessment of Physical Activity questionnaire and the Community Healthy Activities Model Program for Seniors questionnaire.

Results

Thirty-four older adults completed the telephone assessment. A Spearman rho of 0.74 and a kappa statistic of 0.48 were found between TAPA and the written RAPA.

Conclusion

The pilot test demonstrated that the TAPA questionnaire is a promising instrument for use as a brief, telephone-based questionnaire for assessing physical activity in older adults.

Introduction

Physical activity has been shown to assist older adults in managing chronic conditions and to delay decline in their physical and mental health (1). Currently, however, reports show that fewer than 20% of U.S. adults aged 64 or older engage in the U.S. Surgeon General's recommended levels of physical activity (2), and only 11% engage in strength training (3).

The Rapid Assessment of Physical Activity (RAPA) questionnaire was designed to provide clinicians with a tool for quickly assessing the level of physical activity of their older adult patients (4). It was developed following an extensive review and evaluation of existing written questionnaires, which were found either to be too long or to lack sufficient sensitivity for measuring physical activity in older adults. RAPA was found to be reliable and valid compared with the longer, validated Community Healthy Activities Model Program for Seniors (CHAMPS) questionnaire (4,5). However, one drawback to RAPA's use outside the clinical setting is its highly

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visual format, which is not amenable to a telephone-based assessment of physical activity. This study was designed to address this limitation of RAPA by adapting it for use in telephone-based surveys of physical activity.

Other telephone-based physical activity surveys have been used and validated for general use; however, these surveys were not designed to address specific aspects of physical activity among older adults, for example, capturing lighter activities, such as walking leisurely, light vacuuming, light yard work, or light exercise such as stretching (5-7). Telephone-based surveys could be an ideal means of assessing physical activity in older adults, given the many challenges that prevent researchers from evaluating and monitoring this population group, such as the dependence of seniors on others for transportation to a research site. Disabilities often preclude travel to appointments with health care providers and to research sites. Furthermore, evaluating physical activity during visits to health care providers is often difficult because of the large number of competing health issues to be addressed.

We will discuss the process by which we adapted and developed a new telephone-based physical activity survey for older adults and our preliminary findings from a pilot test of the survey. We compare the Telephone Assessment of Physical Activity (TAPA) with RAPA, the system on which it was modeled, and to CHAMPS for criterion validity. Because scoring for both TAPA and RAPA are the same, we hypothesized that if both compare equally well with the CHAMPS instrument, an argument for using TAPA and RAPA interchangeably could be made. Our goal is to help researchers, clinicians, and public health practitioners quickly assess and monitor levels of physical activity in older adults.

Methods

Study design, sample, and setting

In our study's cross-sectional design, we recruited older adults from the greater Seattle area using advertisements at senior centers, congregate meal sites, and senior public housing. We distributed flyers and used senior services representatives to recruit participants. Criteria for inclusion were being aged 50 years or older, English-speaking, and having the ability to answer questions regarding physical activity on both a written questionnaire mailed to participants and in a telephone survey. Assistance in filling out the written survey was offered to anyone who needed help because of physical disability (e.g., poor vision, arthritic pain in the hands). We excluded from the study those who were unable to answer questions because of significant cognitive impairment (e.g., Alzheimer's disease) or severe acute illnesses (e.g., active heart failure).

The CDC-funded Health Promotion Research Center (HPRC) at the University of Washington in Seattle oversaw development and adherence to the study protocol. A research assistant with a master's degree in public health mailed and received all the written questionnaires and administered all the telephone physical activity questionnaires. An effort was made to include underrepresented participants, including men, people of color, and less active seniors.

Questionnaire development

HPRC researchers, along with members of the RAPA development team, began by adapting the RAPA questions to a telephone survey format. Participants who met the eligibility criteria and gave oral consent during a screening telephone call were then administered the TAPA. After finishing the survey, the research assistant gained qualitative tool performance information by asking the following questions: We are developing this survey to use with health care and social service providers who work with older adults. Do you have any comments about the survey (probe about satisfaction, ease of use, acceptability, comprehension)? What did you like about the survey? What could be improved? One week after TAPA administration, the written versions of RAPA and CHAMPS were either mailed to the participant's home or arrangements were made to meet the participant in person to administer the questionnaires orally. Information gathered by the research assistant was used in an iterative process to allow successive improvements to the questionnaire.

We tested two earlier versions of TAPA to improve its ease of use and understandability. The earlier versions had more complicated sentence structure. We found that participants understood and more easily responded to questions with fewer concepts to consider, leading us to subdivide some of our questions. For example, in version 2, question 4 reads "I do moderate physical activities every week, but less than 30 minutes per day, 5 days per week. Does this describe you?" In the final version, we separated

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this question into two questions, 4a and 4b (see Appendix); "I do some moderate physical activities every week, but less than 30 minutes per day. Does this describe you?" and "I do some moderate physical activities every week, but less than 5 days per week. Does this describe you?" A total of two pilot versions were administered during this iterative process. The questionnaire was administered between August 2005 and March 2007. The University of Washington Human Subjects Division approved all procedures, and participants received a nominal gratuity of $15 to thank them for participating.

Scoring of RAPA and TAPA was based on physical activity criteria derived from the Surgeon General's recommendations (2). One point is given for "sedentary level of activity," two for "underactive," three for "active but does not meet standard recommendations," four for "meets standard recommendations." CHAMPS scoring is based on caloric energy expended in moderate-intensity physical activities having a metabolic equivalent value of ≥3.0 (4).

Analysis

To assess how well TAPA captured the physical activity level of older adults, we compared it with the two written questionnaires, RAPA and CHAMPS. In initial analyses we looked at the agreement in levels of physical activity (sedentary to active), from TAPA and RAPA. We then analyzed the participants' answers to TAPA and RAPA for their relationship to CHAMPS, both in calories scored as a continuous variable and in meeting or exceeding the Surgeon General's physical activity recommendations. CHAMPS activities were scored as a continuous variable by determining moderate physical activity calories per week. Participants met the physical activity recommendation if they reported in CHAMPS that they engaged in moderate physical activities at least 5 days per week for a total of 3 or more hours per week or engaged in vigorous physical activities at least 3 days per week for a total of 1 or more hours per week. We assessed criterion validity by calculating a Spearman rho. Scoring instructions are described in the Appendix. Stata 9 software (StataCorp LP, College Station, Texas) was used for this analysis.

Results

Thirty-six participants completed the TAPA telephone survey. Of those who completed TAPA, 34 also completed RAPA and CHAMPS. Participants were aged 63 to 92 years (mean age 75), were mostly female (62%), and represented a diverse sample of minority groups (Table 1). TAPA and RAPA each took 5 to 10 minutes to administer compared with 30 to 40 minutes for CHAMPS.

Table 2 shows the percentage of participants for each level of activity and compares responses from the TAPA and RAPA questionnaires. For both questionnaires, the four activity levels were fairly well distributed with a slightly greater percentage of participants meeting the Surgeon General's physical activities criteria for being sedentary or underactive (2).

The Spearman rho showed a moderately strong correlation of 0.738 (P = .001) between TAPA and RAPA (Table 3). A kappa statistic of 0.463 (P = .001) showed moderate agreement above chance between the same two questionnaires. TAPA, with a Spearman rho of 0.672 (P = .001) and a kappa statistic of 0.526 (P = .001), did not perform as well as CHAMPS. RAPA also did not perform as well as CHAMPS, with a Spearman rho of 0.663 (P = .001) and a kappa statistic of 0.398 (P = .001).

Discussion

Our study begins to address the existing need among researchers, clinicians, and public health practitioners for a telephone-based physical activity assessment tool for older adults that is brief and effective. TAPA was developed using the strengths of the written RAPA questionnaire and going through two piloted versions in order to improve instrument quality. We designed the TAPA survey to err on the side of participants not meeting physical activity criteria when they actually met criteria; that is, to overestimate the false negative. Like RAPA, TAPA was designed to assess light activity that does not meet the CDC guidelines of 30 minutes or more of moderate physical activity every day or on most days of the week (2).

TAPA is an easy-to-administer instrument that has demonstrated acceptability to a wide range of older adults. Though TAPA was not validated by a physical measurement, our study shows good agreement with RAPA. The TAPA and CHAMPS Spearman rho and kappa statistic were consistent with the RAPA and CHAMPS findings. This suggests that TAPA and RAPA may be equally effective in assessing physical activity of older adults in clinical practice.

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There are several limitations to this study. The order of question iteration was not changed during the course of our study. This design flaw did not allow us to determine whether the order of the questions affected the strength of the comparisons. TAPA was not validated using an observable measure of physical activity. A sample size of 34, though diverse in both ethnicity and activity level, was not reflective of the Seattle population as a whole and may not be large enough to make any conclusive statements about TAPA. TAPA's generalizability may also be limited because our sample of seniors engaged in relatively high levels of physical activity compared with seniors in other published reports, which estimate that over 40% of the older U.S. adult population is completely sedentary (8). In addition, TAPA's effectiveness as a monitoring tool was not ascertained. This tool was used only in a cross-sectional analysis, and further research will be required to determine whether it is a competent resource for measuring change over time.

Conclusion

TAPA is a brief, easy-to-administer, telephone-based survey developed in a diverse community setting. It has the same scoring and interpretive characteristics as RAPA; however, neither has been tested against a gold-standard physical measurement.

TAPA represents a good start at developing a physical activity assessment tool for older adults that is brief, easy to administer, and telephone-based. Such a tool will play an increasingly important role as the geriatric population increases and greater clinical and public health emphasis is placed on physical activity and on physical activity research.

TAPA needs further validation, including validation in a larger sample that includes a more sedentary group, and assessment of its ability to detect change over time. The next steps in development of TAPA include a larger study with similar outcome measures and a validation study with a physical measurement instrument (e.g., pedometer, accelerometer, gas exchange measurement device).

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References

1. Christmas C, Andersen RA. Exercise and older patients: guidelines for the clinician. J Am Geriatr Soc 2000;48(3):318-24.
2. Centers for Disease Control and Prevention. Physical activity and health: report of the Surgeon General. Atlanta (GA): US Department of Health and Human Services; 1996.
3. Centers for Disease Control and Prevention. Strength training among adults aged >65 years – United States. MMWR Morb Mortal Wkly Rep 2004;53(2):25-8.
4. Topolski TD, LoGerfo J, Patrick DL, Williams B, Walwick J, Patrick MB. The Rapid Assessment of Physical Activity (RAPA) among older adults. Prev Chronic Dis 2006;3(4). http://www.cdc.gov/pcd/issues/2006/oct/06_0001.htm. Accessed July 2, 2007.
5. Stewart AL, Verboncoeur CJ, McLellan BY, Gillis DE, Rush S, Mills KM, et al. Physical activity outcomes of CHAMPS II: a physical activity promotion program for older adults. J Gerontol A Biol Sci Med Sci

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2001;56(8):M465-70.
6. Craig CL, Marshall AL, Sjostrom M, Bauman AE, Booth ML, Ainsworth BE, et al. International physical activity questionnaire: country reliability and validity. Med Sci Sports Exerc 2003;35(8):1381-95.
7. Nelson DE, Holtzman D, Bolen J, Stanwyck CA, Mack KA. Reliability and validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). Soz Praventivmed 2001;46 Suppl 1:S3-42.
8. Kruger J, Carlson SA, Buchner D. How active are older Americans? Prev Chronic Dis 2007;4(3). http://www.cdc.gov/pcd/issues/2007/jul/06_0094.htm. Accessed July 2, 2007.

Tables

Table 1. Demographic Characteristics of Study Participants, TAPA, RAPA, and CHAMPS (N = 34), August 2005 – March 2007

Characteristics	Value
Age, mean y (range)	75 (63-92)
Female sex	62%
BMI, mean (range)	24 (19-33)
Race/ethnicity	
White	12%
Asian/Native Hawaiian or other Pacific Islander	35%
Black/African American	26%
Hispanic or Latino	14%
American Indian/Alaska Native	0%
Other or unknown	12%

TAPA indicates Telephone Assessment of Physical Activity questionnaire; RAPA, Rapid Assessment of Physical Activity questionnaire; CHAMPS, Community Healthy Activities Model Program for Seniors; BMI = body mass index.

Table 2. Percentage of Participants at Each Physical Activity Level, TAPA and RAPA, August 2005 – March 2007 (N = 34)

Activity Level	TAPA (%)	RAPA (%)
Sedentary	26	26
Underactive	35	32
Active, does not meet standard	21	18
Active, meets standard	18	24

TAPA indicates Telephone Assessment of Physical Activity questionnaire; RAPA, Rapid Assessment of Physical Activity questionnaire.

Table 3. Comparison of TAPA, RAPA, and CHAMPS for All Physical Activity Levels and for Meeting U.S. Surgeon General's Physical Activity Recommendations, August 2005 – March 2007

Comparison (N = 34)	Spearman rho for Physical Activity[a]	Kappa Statistic for Relationship to Surgeon General's Physical Activity Recommendations [b]
TAPA vs RAPA	0.738 (P = .001)	0.463 (P = .001)
TAPA vs CHAMPS	0.672 (P = .001)	0.526 (P = .001)
RAPA vs CHAMPS	0.663 (P = .001)	0.398 (P = .001)

TAPA indicates Telephone Assessment of Physical Activity questionnaire; RAPA, Rapid Assessment of Physical Activity questionnaire; CHAMPS, Community Healthy Activities Model Program for Seniors.
[a] Comparisons between TAPA and RAPA in this column have a range of 1–4 (1 indicates sedentary; 2, underactive; 3, active but does not meet standard; and 4, active and meets standard). Comparisons between TAPA and CHAMPS and RAPA and CHAMPS are based on calories expended per week of moderate activities (range 0–7809).
[b] Comparisons for meeting Surgeon General's physical active recommendations (7) based on questionnaire responses.

Appendix: Telephone Assessment of Physical Activity (TAPA) Questionnaire

TAPA 1: Aerobic

I am going to ask you about the amount and level of physical activity you usually do. In this survey, we define physical activities as activities where you move and increase your breathing or heart rate. These are activities you do for pleasure, work, or for getting around.

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I will read a statement about activities, and you can tell me whether the statement describes you by answering *yes* or *no*. For example,

SAMPLE	I am over 50 years old. Does this describe you?	**Yes** ☐	**No** ☐	**Not Sure** ☐

Do the best you can to answer using the yes/no format; at the end of the survey we can talk about specific activities.

The first statement is

1	I rarely or never do any physical activities. Does this describe you?	**Yes**☐	**No**☐	**Not Sure**☐

The next statements are about three types of activities: light, moderate, and vigorous. Light activities are activities when your heart beats only slightly faster than normal and you can still talk and sing during them. Some examples of light activities are walking leisurely, light vacuuming, light yard work, or light exercise such as stretching. Here are two statements about light activity.

2a	I do some **light** physical activities, but not every week. Does this describe you?	**Yes** ☐	**No** ☐	**Not Sure** ☐
3	I do some **light** physical activity every week. Does this describe you?	**Yes** ☐	**No** ☐	**Not Sure** ☐

Next are moderate activities. Moderate activities are activities when your heart beats faster than normal. You can still talk but not sing during such activities. Some examples of moderate activities are fast walking, aerobics class, strength training, or swimming gently. I have four statements about moderate activities. The first one is

2b	I do some **moderate** physical activities, but not every week. Does this describe you?	**Yes** ☐	**No** ☐	**Not Sure** ☐
4a	I do some **moderate** physical activities every week, **BUT** less than 30 minutes per day. Does this describe you?	**Yes** ☐	**No** ☐	**Not Sure** ☐
4b	I do some **moderate** physical activities every week, **BUT** less than 5 days per week. Does this describe you?	**Yes** ☐	**No** ☐	**Not Sure** ☐
6	I do 30 minutes or more per day of **moderate** physical activities, 5 or more days per week. Does this describe you?	**Yes** ☐	**No** ☐	**Not Sure** ☐

The next three statements are about vigorous activities. Vigorous activities are activities when your heart rate increases a lot. You typically can't talk or your talking is broken up by large breaths. Some examples of vigorous activities are jogging, running, using a stair machine, or playing tennis, racquetball, badminton, or pickleball. The first statement is

5a	I do some **vigorous** physical activities every week, **BUT** less than 20 minutes per day. Does this describe you?	**Yes** ☐	**No** ☐	**Not Sure** ☐
5b	I do some **vigorous** physical activities every week, **BUT** less than 3 days per week. Does this describe you?	**Yes** ☐	**No** ☐	**Not Sure** ☐
7	I do 20 minutes or more per day of **vigorous** physical activities, 3 or more days per week. Does this describe you?	**Yes** ☐	**No** ☐	**Not Sure** ☐

TAPA 2: Strength & Flexibility

And finally, I have two statements about strengthening and stretching activities. First,

1	I do activities to increase muscle **strength**, such as lifting weights or calisthenics, once a week or more. Does this describe you?	**Yes** ☐	**No** ☐	**Not Sure** ☐
2	I do activities to improve **flexibility**, such as stretching or yoga, once a week or more. Does this describe you?	**Yes** ☐	**No** ☐	**Not Sure** ☐

Are there activities that you do that reflect physical activity that we may have not captured in this survey?

(Write in response)

This concludes my questions. Thank you.

TAPA 1: Aerobic, Scoring Instructions

To score, choose the question with the highest score with an affirmative response. Any number less than 6 is suboptimal.

For scoring or summarizing categorically:

Score as sedentary:

I rarely or never do any physical activities.

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Score as underactive:

I do some light physical activities, but not every week, *or* I do some moderate physical activities, but not every week.

I do some light physical activity every week.

Score as underactive regular:

I do moderate physical activities every week, but less than 5 days per week or less than 30 minutes at a time.

I do vigorous physical activities every week, but less than 3 days per week or less than 20 minutes at a time.

Score as active:

I do 30 minutes or more per day of moderate physical activities, 5 or more days per week.

I do 20 minutes or more per day of vigorous physical activities, 3 or more days per week.

TAPA 2: Strength & Flexibility, Scoring Instructions

(Note: The authors made no analysis of TAPA 2, but present the scoring instructions in parentheses in order to make the complete TAPA questionnaire available to readers.)

I do activities to increase muscle strength, such as lifting weights or calisthenics, once a week or more. (1)

I do activities to improve flexibility, such as stretching or yoga, once a week or more. (2)

Both. (3)

None (0)

Appendix D

The Yale Physical Activity Survey For Older Adults

INTERVIEWER: PLEASE MARK TIME: _____: _____: _____
HR MIN SEC

INTERVIEWER: (Please hand the subject the list of activities while reading this statement.) Here is a list of common types of physical activities. Please tell me which of them you did during a typical week in the last month. Our interest is learning about the types of physical activities that are a part of your regular work and leisure routines.

For each activity you do, please tell me how much time (hours) you spent doing this activity during a typical week. (Hand subject card #1.)

	Time (Hrs/wk)	Intensity Code * (Kcal/min)
Work		
Shopping (e.g., grocery, clothes)	_____	3.5
Stair climbing while carrying a load	_____	8.5
Laundry (time loading, unloading, hanging, folding only)	_____	3.0
Light housework: tidying, dusting, sweeping, collecting trash in home, polishing, indoor gardening, ironing	_____	3.0
Heavy housework: vacuuming, mopping, scrubbing floors and walls, moving furniture, boxes, or garbage cans	_____	4.5
Food preparation (10+ minutes in duration): chopping, stirring, moving about to get food items, pans	_____	2.5
Food service (10+ minutes in duration: setting table, carrying food, serving food	_____	2.5
Dish washing (10+ minutes in duration): clearing table, washing/drying dishes, putting dishes away	_____	2.5
Light home repair: small appliance repair, light home maintenance/repair	_____	3.0

Heavy home repair: painting, carpentry, washing/polishing car	_____	5.5
Other: _____	_____	____#

	Time (hrs/wk)	Intensity Code * (Kcal/min)
Yardwork		
Gardening: planting, weeding, digging, hoeing	_____	4.5
Lawn mowing (walking only)	_____	4.5
Clearing walks/driveway: sweeping, shoveling, raking	_____	5.0
Other: _____	_____	____#
Caretaking		
Older or disabled person (lifting, pushing wheelchair)	_____	5.5
Childcare (lifting, carrying, pushing stroller)	_____	4.0
Exercise		
Brisk walking (10+ minutes in duration)	_____	6.0
Pool exercises, stretching, yoga	_____	3.0
Vigorous calisthenics, aerobics	_____	6.0
Cycling, Exercycle	_____	6.0
Swimming (laps only)	_____	6.0
Other: _____	_____	____#
Recreational Activities		
Leisurely walking (10+ minutes in duration)	_____	3.5
Needlework: knitting, sewing, needlepoint, etc.	_____	1.5

Dancing (mod/fast): line, ballroom, tap, square, etc.	_____	5.5
Bowling, bocci	_____	3.0
Golf (walking to each hole only)	_____	5.0
Racquet sports: tennis, racquet ball	_____	7.0
Billiards	_____	2.5
Other: _____	_____	____#

INTERVIEWER: (Please read to subject.) I would now like to ask you about certain types of activities that you have done during the past month. I will ask you about how much vigorous activity, leisurely walking, sitting, standing, and some other things that you usually do.

1. About how many times during the month did you participate in vigorous activities that lasted at least 10 minutes and cause large increases in breathing, heart rate, or leg fatigue or caused you to perspire? (Hand subject card #2)

   Score: 0 = Not at all (go to Q3)
   1 = 1-3 times per month
   2 = 1-2 times per week
   3 = 3-4 times per week
   4 = 5+ times per week
   7 = refused
   8 = don't know

   Frequency score = _____

2. About how long do you do this vigorous activity(ies) each time? (Hand subject card #3)

   Score: 0 = Not applicable
   1 = 10-30 minutes
   2 = 31-60 minutes
   3 = 60+ minutes
   7 = refused
   8 = don't know

   Duration score = _____
   weight = 5

VIGOROUS ACTIVITY INDEX SCORE:

FREQ SCORE ____ x DUR SCORE ____ x WEIGHT _____ =_____
(Responses of 7 or 8 are scored as missing.)

3. Think about the walks you have taken during the past month. About how many times per month did you walk for at least 10 minutes or more without stopping which was not strenuous enough to cause large increases in breathing, heart rate, or leg fatigue or cause you to perspire? (Hand subject card #2)

Score:
0 = Not at all (go to Q5)
1 = 1-3 times per month
2 = 1-2 times per week
3 = 3-4 times per week
4 = 5+ times per week
7 = refused
8 = don't know

Frequency score = _____

4. When you did this walking, for how many minutes did you do it? (Hand subject card #3)

Score:
0 = Not applicable
1 = 10-30 minutes
2 = 31-60 minutes
3 = 60+ minutes
7 = refused
8 = don't know

Duration score = _____
weight = 4

LEISURELY WALKING INDEX SCORE:
FREQ SCORE ____ x DUR SCORE ____ x WEIGHT ____ = _____
(Responses of 7 or 8 are scored as missing.)

5. About how many hours a day do you spend moving around on your feet while doing things? Please report only the time that you are actually moving. (Hand subject card #4)

Score:
0 = Not at all
1 = less than 1 hr per day
2 = 1 to less than 3 hrs per day
3 = 3 to less than 5 hrs per day
4 = 5 to less than 7 hrs per day
5 = 7+ hrs per day
7 = refused

8 = don't know Moving score = _____
weight = 3

MOVING INDEX SCORE:
FREQ SCORE ____ x WEIGHT ____ = _____
(Responses of 7 or 8 are scored as missing.)

6. Think about how much time you spend standing or moving around on your feet on an average day during the past month. About how many hours per day do you stand? (Hand subject card #4)

Score: 0 = Not at all
1 = less than 1 hr per day
2 = 1 to less than 3 hrs per day
3 = 3 to less than 5 hrs per day
4 = 5 to less than 7 hrs per day
5 = 7+ hrs per day
7 = refused
8 = don't know Standing score = _____
weight = 2

STANDING INDEX SCORE:
FREQ SCORE ____ x WEIGHT ____ = _____
(Responses of 7 or 8 are scored as missing.)

7. About how many hours did you spend sitting on an average day during the past month? (Hand subject card #5)

Score: 0 = Not at all
1 = less than 3 hours
2 = 3 hrs to less than 6 hrs
3 = 6 hrs to less than 8 hrs
4 = 8+ hrs
7 = refused
8 = don't know Sitting score = _____
weight = 1

SITTING INDEX SCORE:
FREQ SCORE ____ x WEIGHT ____ = _____
(Responses of 7 or 8 are scored as missing.)

8. About how many flights of stairs do you climb up each day? (Let 10 steps = 1 flight.)

_____

9. Please compare the amount of physical activity that you do during other seasons of the year with the amount you just reported for a typical week in the past month. For example, in the summer, do you do more or less activity than what you reported doing in the past month? (INTERVIEWER: PLEASE CIRCLE THE APPROPRIATE SCORE FOR EACH SEASON.)

	Lot More	Little More	Same	Little Less	Lot Less	Don't know	
Spring	1.30	1.15	1.0	0.85	0.70		--
Summer	1.30	1.15	1.0	0.85	0.70		--
Fall	1.30	1.15	1.0	0.85	0.70		--
Winter	1.30	1.15	1.0	0.85	0.70		--

SEASONAL ADJUSTMENT SCORE = SUM OVER ALL SEASONS/ 4 _____

INTERVIEWER: PLEASE MARK TIME: _____: _____: _____
HR MIN SEC

Card #1
Weekly Physical Activities

Work

Shopping (e.g., grocery, clothes)	
Stair Climbing while carrying a load	
Laundry	
Light Housework:	tidying, dusting, sweeping, collecting garbage in home, polishing, indoor gardening, ironing
Heavy Housework:	vacuuming, mopping, scrubbing floors and walls, moving furniture, moving boxes or garbage cans
Food preparation (+10 min.):	chopping, stirring, moving around to get food items, pots or pans
Food service (+10 min.):	setting table, carrying food, serving food
Dish washing (+10 min.):	clearing table, washing and drying dishes, putting dishes away
Light home repair:	small appliance repair, light household maintenance and repair tasks
Heavy home repair:	painting, washing and polishing car, carpentry
Other:	_____

Yardwork

Gardening:	pruning, planting, weeding, hoeing, digging
Lawn mowing (walking only)	
Clearing walks and driveway:	raking, shoveling, sweeping
Other:	_____

	Caretaking
Older or disabled person:	lifting, pushing wheelchair
Childcare:	lifting, pushing stroller
	Exercise
Brisk walking for exercise (10 + min.):	causes large increases in heart rate, breathing or leg fatigue
Stretching exercises, yoga, pool exercise	
Vigorous calisthenics, aerobics:	causes large increases in heart rate, breathing or leg fatigue
Cycling, exercycle	
Lap swimming	
Other:	_____
Recreational Activities	
Leisurely walking (10+ min.)	
Hiking	
Needlework:	knitting, sewing, crocheting, needlepoint
Dancing (mod/fast):	line dancing, ballroom, square, tap, etc.
Bowling, bocci	
Golf (walking each hole only)	
Racquet sports:	tennis, racquetball
Other:	_____

Card #2

Not at all
1-3 times per month
1-2 times per week
3-4 times per week
5 or more times per week
Don't know

Card #3

10-30 minutes
31-60 minutes
60 or more minutes
Don't know

Card #4

Not at all
Less than 1 hour per day
1 to less than 3 hours per day
3 to less than 5 hours per day
5 to less than 7 hours per day
7 or more hours per day
Don't know

Card #5

Not at all
Less than 3 hours per day
3 to less than 6 hours per day
6 to less than 8 hours per day
8 or more hours per day
Don't know