Deakin Research Online

This is the published version:


Available from Deakin Research Online:

http://hdl.handle.net/10536/DRO/DU:30008615

Reproduced with the kind permissions of the copyright owner.

Copyright : 2003, Royal New Zealand College of General Practitioners
Measuring physical activity in primary health care research: Validity and reliability of two questionnaires

C Raina Ellery MBChB FRNZCGP, Senior Lecturer, Department of General Practice and Primary Health Care, University of Auckland; Ngaire M Kerse MBChB PhD FRNZCGP, Harkness Fellow, Department of General Practice and Primary Health Care, University of Auckland, and Harkness Fellow in Health Care Policy, Group Health Cooperative of Puget Sound, Seattle; Boyd Swinburn MBChB FRACP MD, Professor, Physical Activity and Nutrition Research Unit, Deakin University, Melbourne; Bruce Arroll MBChB PhD FRNZCGP, Associate Professor, Department of General Practice and Primary Health Care, University of Auckland; Elizabeth Robinson MSc, Department of Community Health, University of Auckland

ABSTRACT

Objectives
To assess the effectiveness of physical activity interventions in primary health care, measurement tools are needed that are appropriate and valid for use within primary care amongst less-active people. This study assesses the validity of two physical activity recall questionnaires within a primary care setting.

Methods
The Auckland Heart Study (AHS) Three-month Recall Physical Activity Questionnaire and the Green Script Study (GSS) Two-week Recall Physical Activity Questionnaire were adapted for self-administration within a primary care setting. Consecutive 40–79 year old patients were screened from the waiting rooms of two general practices over a five-day period. Less-active adults were invited to participate in the study. One-week test-retest reliability was assessed for the AHS questionnaire. Criterion-related validity was assessed for both questionnaires using a seven-day activity diary and seven-day pedometer record as standard comparison measures.

Results
Recruitment rates of 71% (n=36) and 67% (n=34) were achieved for the test-retest and validity study components, respectively. Intraclass and Spearman’s correlation coefficients were 0.52–0.81 and 0.48–0.71, respectively, for test-retest reliability of the AHS questionnaire (p<0.01). Spearman’s correlation coefficients were 0.50–0.74 for the AHS and 0.55–0.99 for the GSS questionnaires, when compared with the activity diary for total energy expenditure, total moderate, vigorous, and leisure moderate activity (p<0.01). Spearman’s correlation coefficients were 0.37–0.51 for AHS and 0.61 for GSS for total moderate activity compared with the pedometer (p<0.01).

Conclusions
The validity and reliability of the AHS and GSS physical activity questionnaires were considered adequate for epidemiological study amongst less-active adults within a primary care setting.

Key words
Exercise, primary health care, questionnaire, validity, reliability

(NZFP 2003; 30:171–180)
setting. Little et al. identified a major
gap in the literature of physical ac-
tivity and dietary assessment tools
validated in primary care, which were
suitable for use within that setting.6

The external validity of physical activity measurement tools is influ-
enced by the choice of appropriate
population for validation and frame of
reference of exposure.7 Physical ac-
tivity questionnaires have often been
validated amongst active or educated8
volunteers rather than less-active or
randomly selected subjects. However,
less-active middle-aged and older
adults visiting their family doctor make
up the population of interest for test-
ing the effectiveness of most physical activity interventions in primary health
care. Activity questionnaires in the
past have often been more accurate
for vigorous than moderate or light
activities, as discrete episodes of
vigorous or sporting activities are easier
to recall than moderate activities,
which tend to be spread throughout
the day. Questionnaires are needed that
can estimate moderate activities more
typical of less-active populations and
more typical of the physical activity
recommended to such a population.11

To be suitable for use in primary
care, questionnaires need to be self-
administered and filled out within 10-
15 minutes. To allow comprehensive
analysis, all major areas of activities
should be asked about in the ques-
tionnaires, including leisure-time, oc-
cupational, and domestic activities.12
The questionnaires must also comply
with recommended physical activity
measurement data standards, which
require recording type, frequency, in-
tensity and duration of each activity.13

The aim of this study, therefore,
was to adapt and validate two exist-
ing physical activities questionnaires
to be used in an evaluation of a physi-
cal activity intervention in general
practice amongst less-active adults.

Methods

Settings and participants

The questionnaire validation study
took place within two general prac-
tices within the Waikato region, each
with two general practitioners and two
practice nurses, just prior to the com-
 mencement of an evaluation of a
physical activity intervention in gen-
eral practice carried out from 2000 to
2002.14 Recruitment of patients was
 carried out in the waiting rooms of
each practice over a five-day period.
Inclusion criteria comprised 'less-acti-
ve' 40 to 79-year-old patients visit-
ing their family doctor during the week
of recruitment. Patients were defined
as 'less-active' if they answered 'No'
to the following question: 'As a rule,
do you do at least 30 minutes of vigo-
rous or moderate exercise (such as walk-
ning or a sport), on five or more days
of the week?' Exclusion criteria included
presence of unstable angina, uncon-
trolled congestive heart failure, pro-
genous and debilitating conditions,
a serum cholesterol concentration of
greater than 9 mmol/L, systolic blood
pressure over 220 mmHg, or diastolic
blood pressure over 120 mmHg. These
criteria were based on recommended
contraindications to advising exercise
to the elderly.15 Patients were also ex-
cluded if they did not speak English
or were acutely injured or unwell. If
the general practitioner or staff con-
sidered the candidate unsuitable for
participation on medical or other
grounds, the patient was not included.

Physical activity questionnaire
development

The Auckland Heart Study (AHS)
Three-month Recall Physical Activity
Questionnaire and the Green Script
Study (GSS) Two-week Recall Physi-
ical Activity Questionnaire were se-
lected and adapted to allow self-ad-
ministration within a practice setting.

The Auckland Heart Study (AHS)
questionnaire

The AHS Physical Activity Three-
month Recall Questionnaire was de-
veloped by Jackson16 from compo-
ents of the Stanford Five City Seven-
day PA Questionnaire,17 the Harvard
Alumni Study PA Questionnaire,18 the
Health Insurance Project (HIP) Job
Questionnaire,19 and household activ-
ity questions developed by Scragg.20
The AHS questionnaire has been used
in the Auckland Heart Study,21 and the
Auckland Blood Pressure Control
Study. Arroll validated the AHS questionnaire amongst a random sample of 113 adults in New Zealand. The AHS questionnaire was also used in a 12-month evaluation of the green prescription physical activity intervention in general practice that followed this validation study (unpublished data).

The Green Script Study (GSS) questionnaire

The GSS questionnaire is a two-week recall questionnaire. It has been used previously in a randomised-controlled trial with sedentary patients, evaluating the Green Script physical activity counselling programme in primary health care, over a six-week period. The test-retest reliability of the GSS questionnaire had been established previously, but a criterion related validation study had not been carried out.

The physical activity diary and pedometers

A seven-day activity diary and pedometer were used to assess the validity of the questionnaires. The pedometers used were Omron HJ-003, battery-powered and digitally displayed step counters. The respondents were asked to wear the pedometer and record daily number of steps on a form. During the same week respondents were also asked to fill in a seven-day activity diary by listing all moderate and vigorous leisure, domestic and occupational activities performed throughout each day. The duration and intensity of each activity was also recorded, as were the number of hours spent sleeping and resting in bed in order to calculate total energy expenditure.

Study protocol

All 40 to 79-year-old patients visiting their family doctor were screened for inactivity as they entered the practice over a five-day period. Those who fulfilled the inclusion criteria were invited to take part in the study. Participants filled out the AHS and the GSS questionnaires at the family doctor's office. Participants repeated the AHS questionnaire one to two weeks later (mean of 11 days), commenced the seven-day activity diary and wore the pedometer for seven days.

Analysis

Test-retest reliability was assessed in the AHS questionnaire. Criterion related validity was assessed for both questionnaires using a seven-day activity diary and seven-day pedometer record as standard comparison measures. Criterion related validity assesses the relation between measurements made using an instrument and external standard reference measurements, with which a correlation would be expected. Main physical activity outcomes included estimated total energy expenditure, total moderate, total vigorous, and leisure-time moderate activity.

Information about type, duration, frequency and intensity of each activity was recorded in the questionnaires. A MET value was established for each activity, using a standard compendium. A MET represents the ratio of work metabolic rate to a standard resting metabolic rate of 1.0 kcal (4.184 kJ)/kg/hr. The compendium provides an empirically-based coding system of common leisure-time, domestic and occupational activities and designates each activity with an average metabolic equivalent value (MET). Time spent sleeping or resting in bed was coded as one MET value as this represents the resting metabolic rate. Time not accounted for, after asking about sleep, leisure, domestic and occupational activities was allocated a 1.5 MET value, assuming that time unaccounted for was spent in light activity. Activities of 3.0–4.9 MET were classified as moderate. Activities of greater than 5.0 MET were classified as vigorous. This classification allowed the calculation of energy expenditure within each activity category, as well as total energy expenditure. Time spent in light, moderate and vigorous activities, of leisure, occupational or domestic categories was also estimated from the questionnaires and expressed as hours per week. The values calculated from the two questionnaires were compared with the validation seven-day diary and pedometer readings.

Analyses were performed using SPSS 10.0 statistical software. Spearman's rather than Pearson's correlation coefficients were calculated because of the non-parametric nature of the data. Intraclass correlation coefficients were also calculated for reliability data. Bland-Altman plots of total energy expenditure and total moderate activity were presented as an alternative tool for testing validity.

Results

Participant characteristics

Recruitment rates of 71% (N=36) and 67% (N=34) were achieved for the test-retest and validity study components, respectively, as shown in Figure 1. Seventy-five per cent of subjects were female. The average age was 59 years (sd 9.4) and the mean body mass index was 28.9 kg/m2 (sd 6.4). There was a wide range of educational levels, with 60% of participants having no secondary school qualifications and 12.5% with tertiary qualifications. Ethnic diversity was representative of both regions with 10% Maori and 90% European. Table 1 shows physical activity estimates from the seven-day diary, the two administrations of the AHS questionnaire and the GSS questionnaire.

Reliability of the AHS questionnaire

There was good test-retest reliability for total energy expenditure, total moderate and leisure moderate activity estimated by the AHS questionnaire. Intraclass correlation coefficients (r=0.52 to 0.81) and Spearman's correlation coefficients (r=0.48 to 0.71) are presented in Table 2. Test-retest reliability of the GSS questionnaire has been established previously.

Validity of the AHS and the GSS questionnaires

Comparison with the seven-day diary

Spearman's correlation coefficients of the AHS questionnaire and the GSS
questionnaire compared to the seven-
day diary are presented in Table 3 for
total energy expenditure (r=0.59
to 0.74), total moderate activity
(r=0.50 to 0.72), leisure moderate ac-
tivity (r=0.52 to 0.59), and leisure
vigorous activity (r=0.39 to 0.99).
Very few participants took part in
vigorous activity. Consequently, vig-
orous activity correlation coefficients
were more variable.

Mean paired differences of the
AHS estimates compared to the
seven-day diary estimates of total
energy expenditure (0.29%), total
moderate activity (3.96%), and leis-
ure-time moderate activity (1.57%),
were very small and not statistically
significant. This is also depicted in
the Bland-Altman graphs of total
moderate activity and total energy
expenditure of the seven-day diary
compared to the AHS questionnaire
in Figure 2, which shows mean dis-
crepancies close to zero, but large
standard deviations. By contrast, the
GSS tends to underestimate all ac-
tivity categories (by 5.93 to 43.08%) by
statistically significant amounts (p < 0.01). These underestimates are de-
picted graphically in the Bland-
Altman graphs in Figure 2.

Comparison with the seven-day
pedometer record

Table 4 shows modest correlation
between the physical activity ques-
tionnaires and pedometer records for
total number of hours of moderate
activity (r=0.37 to 0.61) and total
energy expenditure (r=0.22 to 0.50).

Discussion

The AHS questionnaire has dem-
strated good repeatability and va-

dility when compared to the refer-
ence standards of a seven-day di-
ary and pedometer recording, for
moderate activity as well as total
energy expenditure. The GSS
questionnaire tended to underesti-
mate all activity variables com-
pared to the diary, although corre-
lation coefficients were acceptable
when compared to the seven-day
diary and pedometer recordings.

Participants were likely to be re-
presentative of less-active adults in pri-
mary health care, as subjects were re-
cruited in a systematic way from the
waiting rooms of two general prac-
tices. Reliability and validity studies
were completed by 70% and 67% re-
spectively of eligible patients. Edu-
cational and ethnicity backgrounds
were also diverse and representative
of the region.

For the purposes of this study, ac-
cepted levels of reliability and validi-
ity reported in the literature from stud-
ies using comparable physical activity
measurement techniques have been
used as a benchmark to measure the
adequacy of results achieved here.

Spearman's correlation coeffi-
cients of 0.48 to 0.71 for test-retest
reliability were found in this study.
These correlation coefficients are
comparable to those achieved with
other physical activity questionnaires
used in large population-based stud-
ies, such as the Stanford seven-day
recall, the EPIC core, and College
Alumnus physical activity question-
naires. The correlation coefficients
found in this study are also similar
to recognised physical activity ques-
tionnaires used amongst the elderly,
such as the PASE questionnaire, and
the CHAMPS questionnaire. Many
of these studies have used Pearson
correlation coefficients, which tend
to produce higher values than
Spearman correlation coefficients
when data are skewed, which is fre-
cently the case with physical activ-
ity data. Despite the variability in
methodologies used, correlation co-
efficients of reproducibility achieved
in the present study are acceptable
when compared to those found in the
literature.

Table 1. Estimated Means for Total Energy Expenditure (kcal/kg/wk), Total Moderate and Leisure Moderate Activity (hours/week) from the AHS Questionnaire, Seven-day Diary and GSS Questionnaire

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total energy expenditure, AHS, 1st administration</td>
<td>40</td>
<td>272.66</td>
<td>37.82</td>
</tr>
<tr>
<td>Total energy expenditure, AHS, 2nd administration</td>
<td>36</td>
<td>271.71</td>
<td>36.44</td>
</tr>
<tr>
<td>Total energy expenditure, Seven-day diary</td>
<td>34</td>
<td>272.13</td>
<td>27.46</td>
</tr>
<tr>
<td>Total energy expenditure, GSS questionnaire</td>
<td>38</td>
<td>258.34</td>
<td>32.00</td>
</tr>
<tr>
<td>Total moderate activity, AHS, 1st administration</td>
<td>40</td>
<td>15.60</td>
<td>15.53</td>
</tr>
<tr>
<td>Total moderate activity, AHS, 2nd administration</td>
<td>36</td>
<td>15.84</td>
<td>14.58</td>
</tr>
<tr>
<td>Total moderate activity, Seven-day diary</td>
<td>34</td>
<td>16.00</td>
<td>11.74</td>
</tr>
<tr>
<td>Total moderate activity, GSS questionnaire</td>
<td>38</td>
<td>9.49</td>
<td>11.57</td>
</tr>
<tr>
<td>Leisure moderate activity, AHS, 1st administration</td>
<td>40</td>
<td>3.40</td>
<td>4.53</td>
</tr>
<tr>
<td>Leisure moderate activity, AHS, 2nd administration</td>
<td>36</td>
<td>3.69</td>
<td>5.23</td>
</tr>
<tr>
<td>Leisure moderate activity, 7-day diary</td>
<td>34</td>
<td>3.82</td>
<td>5.28</td>
</tr>
<tr>
<td>Leisure moderate activity, GSS questionnaire</td>
<td>38</td>
<td>1.96</td>
<td>3.52</td>
</tr>
</tbody>
</table>
Intraclass correlation coefficients for reproducibility of 0.52 to 0.81 achieved in this study are comparable to those achieved by other physical activity questionnaires used in epidemiological research such as the Tecumseh Community Health Study questionnaire, the Five City Project questionnaire and the Baekke questionnaire.34

There is reasonable correlation between the two questionnaires and the seven-day diary for total energy expenditure, total moderate activity and leisure moderate activity. Spearman’s correlation coefficients ranged from 0.50 to 0.74 for the AHS questionnaire and 0.55 to 0.99 for the GSS questionnaire. Other validity studies of frequently used physical activity questionnaires have used activity diaries as a reference and achieved similar correlation coefficients.22,30,31

Spearman’s correlation coefficients found for the AHS and GSS questionnaires compared to pedometer were 0.37 to 0.61, (p<0.05) for total moderate activity. These coefficients are comparable to those found for other physical activity questionnaires that used motion sensors as a reference, such as the PASE,32 Minnesota Leisure Time,26 and questionnaires reviewed by LaPorte.37

The use of correlation coefficients alone to assess agreement between two measurement techniques may be misleading.29 The scale or absolute values from the two measurement techniques may be quite different but still produce high correlation coefficients. For example, Table 1 shows that mean estimates of activities were very similar for the AHS and the seven-day diary, but significantly lower for the GSS, yet correlation coefficients were as high for the GSS as the AHS. To assess agreement, Bland and Altman developed a graphical depiction whereby the difference between the values obtained by each measurement technique are plotted for each individual against the mean of the two values.29 The Bland-Altman graphs for total moderate activity and total energy expenditure for the GSS questionnaire show mean discrepancies below zero, indicating underestimation of activity compared to the diary. The Bland-Altman graphs of total moderate activity and total energy expenditure for the AHS questionnaire compared to the seven-day diary show mean discrepancies of close to zero, but large standard deviations. Consequently, the AHS questionnaire is adequate for population mean estimation and epidemiological study but may not be suitable for individual estimation of activity levels. Bland-Altman plots are rarely presented in physical activity questionnaire reliability and validity studies. When they are presented, results are often disappointing,29 possibly due to the imprecision of assessing physical activity.

Activity diaries and pedometer recordings were chosen for validation comparisons in this study because of their practicality and accepted use as validation tools in the literature.37-39 However, there is a potential for correlated errors of recall bias between diaries and questionnaires. Furthermore, pedometers measure number of steps while questionnaires ask about all activities and their intensity. Consequently, this and other studies have found only modest agreement between self-reported physical activity (diaries, records and questionnaires) and motion sensors.35,37 Physical activity levels assessed by heart rate monitoring and doubly labelled water techniques are recognised as more accurate reference measurements.7,40 Even so, when these methods have been used in PA questionnaire validation studies, they often produce similar results to studies using self-report validation tools.41

This paper has addressed the shortage of physical activity questionnaires that are valid and practical for use in primary care research. In addition, total energy expenditure, as well as the component lea-
Figure 2. Bland-Altman Graphs of the Auckland Heart Study (AHS) and Green Script Study (GSS) Questionnaires compared with the 7-day Diary Estimations of Total Moderate Activity and Total Energy Expenditure (TEE)

Table 4. Validity of the AHS Questionnaire and the GSS Questionnaire compared to the Pedometer for Total Moderate Activity and Total Energy Expenditure using Spearman's Correlation Coefficients

<table>
<thead>
<tr>
<th></th>
<th>1st AHS* n = 34</th>
<th>P-value</th>
<th>2nd AHS* n = 32</th>
<th>P-value</th>
<th>GSS† n = 33</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Moderate Activity</td>
<td>0.37</td>
<td>0.03</td>
<td>0.51</td>
<td>0.00</td>
<td>0.61</td>
<td>0.00</td>
</tr>
<tr>
<td>Total Energy Expenditure</td>
<td>0.22</td>
<td>0.22</td>
<td>0.49</td>
<td>0.00</td>
<td>0.50</td>
<td>0.00</td>
</tr>
</tbody>
</table>

* 1st AHS: First administration of the Auckland Heart Study questionnaire.
† 2nd AHS: Second administration of the Auckland Heart Study questionnaire.

Acknowledgements

We are grateful for the participation of the doctors, staff and patients from Piako Medical Centre in Te Aroha and Beck Cottage Surgery in Thames, New Zealand. This work was supported by the National Heart Foundation of New Zealand, the Hillary Commission, the Waikato Medical Research Foundation and the University of Auckland. Ethics approval was granted from the Waikato Ethics Committee, New Zealand. We would like to thank Dr Stephen Buetow for his comments on the draft and Dennis Kerins for his questionnaire formatting.
Appendix 1

AHS Physical Activity Questionnaire

Date ........................................
ID Number ..............................

These questions are about your activities during the last three months.

1. During the last 3 months, did you engage in any vigorous leisure time activity long enough to make you breathe hard and sweat, at least once per fortnight? (e.g. tennis singles, dancing, jogging, squash, soccer, swimming, aqua-aerobics, exercise, gym workout etc.)

   YES [ ]  NO [ ]

   If YES, please record these below:

<table>
<thead>
<tr>
<th>Sport or recreation</th>
<th>Times per FORTNIGHT</th>
<th>Minutes per time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. During the last 3 months did you engage in any other regular leisure time activity? (Moderate activity, e.g. walking for exercise or pleasure, bush walking, table tennis, golf, bowling, tennis doubles, rebounder, biking etc.) (excluding gardening)

   YES [ ]  NO [ ]

   If YES, please record these below:

<table>
<thead>
<tr>
<th>Sport or recreation</th>
<th>Times per FORTNIGHT</th>
<th>Minutes per time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. How many hours do you usually rest and sleep each night? ____________ hours

4. What is your current occupation? ____________________________
   (If household activities only, retired, or beneficiary, go straight to Question 9)

5. How many hours do you work in an average week? ____________ hours
   (If more than one occupation, state how many hours at each job)

6. During the last 3 months, did you engage in any vigorous activity at work long enough to make you breathe hard and sweat on a regular basis? (e.g. heavy carpentry, fencing or construction work, physical labour, chopping wood, etc.)

   YES [ ]  NO [ ]

   If YES, please record these below:

<table>
<thead>
<tr>
<th>Work activity</th>
<th>Times per FORTNIGHT</th>
<th>Minutes per time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7. During the last 3 months did you engage in any moderate activity at work? (e.g. delivering mail, milking cows, house painting, lifting, carrying light objects, brisk or farm walking etc.)

YES [ ] NO [ ]

<table>
<thead>
<tr>
<th>Work activity</th>
<th>Times per FORTNIGHT</th>
<th>Minutes per time</th>
<th>OFFICE USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. How many minutes per day would you spend walking to and from work? ______
   (e.g. from home, car, bus). And how many days per week? ____________

9. Have you done any (other) brisk walking on a regular basis, (that is at least once per 2 weeks) in the last 3 months? e.g. to or around shops, library, or church?

YES [ ] NO [ ]

If YES, minutes per day _______ Number of days walked per week _________

10. How many hours did you spend on the following activities in an average week?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
<th>Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hanging out clothes, light housework</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mopping, vacuuming, cleaning windows or car,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>moving furniture, clearing out garage, or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>heavier housework</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gardening, weeding, pruning, lawn-mowing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home maintenance, light carpentry, painting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Code Hrs Min

11. Compared with 12 months ago, are you now:

Less active [ ] More active [ ] The same [ ]

12. If more or less active, is there any reason? ____________________________________

____________________________________

____________________________________

____________________________________
Appendix 2

GSS Physical Activity Questionnaire

Date ..........................................  
ID Number .................................

1. Are you currently doing any regular physical activity to improve or maintain your health and fitness?

YES □  NO □

2. Please list vigorous, moderate and light activities that you have done in the last two weeks. These activities could be recreational, around the home or at work.

Vigorous activities are activities that make you perspire and pant, and usually cannot be sustained for any length of time, such as squash, running, chopping wood or physical labour.

Moderate activities are activities that make you breath hard and feel warm, such as brisk walking, lawn mowing, vacuuming, carrying light boxes or house painting.

<table>
<thead>
<tr>
<th>Activity</th>
<th>How many times in the last 2 weeks?</th>
<th>How long each time?</th>
<th>Ttick</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreational activities:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Around the home:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At work or to and from work:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Is this a typical amount of activity for you?

YES □  No, I usually do more □  No, I usually do less □

4. What is your current occupation?  

________________________________________________________________________

5. How many hours do you sleep each night?  

________________________________________________________________________
References


