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Leisure Time Physical Activity Instrument and Physical Activity at Home and Work Instrument. Development, face validity, construct validity and test-retest reliability for subjects with fibromyalgia

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Abstract

Purpose. A new instrument measuring leisure time physical activity (LTPAI) in populations predominately engaging in low intensity activities and a new instrument measuring the Physical Activity at Home and Work (PAHWI) were designed.

Methods. Patients with long-lasting pain and expert physiotherapists participated in the development of the two instruments. Test-retest reliability was evaluated for the LTPAI and the PAHWI. Construct validity was evaluated for the LTPAI by comparing it with an instrument measuring physical activities for older people, six-minute walk test and aerobic capacity.

Population. 37 women with FM, with the mean age of 46 years (SD 8.4) and mean symptom duration of 11 years (SD 5.9) were recruited to the study.

Results. The mean time that the study population spent in physical activities during leisure time was 5.2 hours (SD 4.0) a week. Satisfactory test-retest reliability was found for the total score of LTPAI (ICC 0.86, CI 0.79 – 0.93) and for the PAHWI (ICC 0.91, CI 0.82 – 9.96). A significant association between the LTPAI and the six-minute walk test (r_s 0.40, $p = 0.02$) and another physical activity instrument (r_s 0.39, $p = 0.02$) was found. As expected, LTPAI did not have any association with aerobic capacity.

Conclusions. Face validity of the instruments was ensured during the development process. Satisfactory test-retest reliability was found for the LTPAI and the PAHWI. Significant but low associations were found between the LTPAI and the six-minute walk test and an instrument designed for older people, respectively, while no association was found between the LTPAI and aerobic capacity.

Keywords: *Activity, instrument, leisure, pain, physical, reliability, validity*

Introduction

Physical exercise is regarded as an important component for maintaining health. In research, physical exercise and activity are commonly quantified by means of a self- or an interviewer-administered questionnaire focusing on leisure time activity or on overall activity including employment. The respondent is usually asked to recall the activity he/she has performed during a certain period of time, for example during one week or one month. Some questionnaires are designed to measure energy expenditure, based on exact information about the duration and intensity of reported activities [1 – 4], while other questionnaires use a rougher scale ranging from light to vigorous activities [5 – 9]. There is today no consensus about what kind of information is required to study exercise patterns in a population or between populations. Questionnaires designed for healthy adults usually weight sports and vigorous exercises higher than exercises performed at moderate or light levels, and therefore they may have a limited value when attempting to study differences in exercise patterns in populations which seldom exercise at high intensity. For example, women with fibromyalgia (FM) have been found to predominately participate in light and moderate leisure time activity [10,11] although there are patients who can also exercise at a vigorous intensity level [12]. Also studies of healthy adults have found that women report less vigorous activity than men [3,13,14], while both genders tend to report an equal amount of

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activity at the light and moderate intensity levels [13,14]. As recent studies indicate that not only high intensity activities, but also activities at light and moderate intensities can enhance health in sedentary people [8,9,15] it appears to be important to monitor also the time spent on light intensity activities.

An instrument is considered to have face validity if it appears to experienced individuals to measure a particular interest [16]. Construct validity is based on a theoretical understanding of the phenomenon that is being measured. Convergent construct validity refers to the level of correlation between a new instrument and previously used instruments believed to be related to the phenomenon of interest [17]. By demonstrating variables which do not correlate with the construct of interest and are not expected to be measured by the instrument, the construct of the instrument becomes clearer [18]. Test-retest reliability assesses the degree of stability in an individual's scores from one administration to another [18].

The aim of this study was to develop an instrument measuring physical exercise and physical activity in patients with rheumatoid diseases and patients with long-lasting pain. Leisure time was chosen as the main interest as most jobs today are sedentary and non-working subjects are frequently found in the pain populations. Face validity, construct validity and test-retest reliability were evaluated. An instrument assessing domestic and workplace physical activity was also developed, and its face validity and test-retest reliability were evaluated. The requirements of the instruments were to be self-administered, brief, easy to score and easy to interpret and feasible for use in clinical practice.

Methods

Development of the instrument

A literature review of measurements of physical exercise for patients with long-lasting pain initiated the process of developing the new questionnaires, and it is partly presented in the Introduction. To ensure face validity, patients with rheumatoid and pain disorders were asked to fill in the first version of the two questionnaires and to give their opinion of the relevance of the questions. The respondents suggested that some words should be changed, the scaling system should be simplified and the occupational and domestic work categories should be separated in PAHWI, which had not been done in the first version. After the modifications were made, the patients who were contacted again reported that the instruments were now easy to understand and it took approximately 5 – 10 minutes to complete them. Expert physiotherapists treating patients with musculoskeletal pain were then consulted and some further modifications to terms and scalings were made.

1. The Leisure Time Physical Activity Instrument (LTPAI) comprises three activity level categories: light, moderate and vigorous, and a short description of each category was presented. The subject was asked to recall the average number of hours spent during a week in activity at the given activity level during the last four weeks. The scale was simplified into the following steps: (a) 0.5 – 1.5 hours a week, (b) 2 – 4 hours a week and (c) more than 4 hours a week, which the respondent was asked to specify in hours. The mean value of the first two steps, being 1 and 3 hours, were used in the calculation of the total score. If no step was selected, the number of hours for the category was 0. The hours of the intensity categories were added together to produce the Leisure Time Physical Activity during a week.
2. The Physical Activity at Home and Work Instrument (PAHWI) comprises three categories for work at home: light, moderate and heavy activity, and four categories for employment: sedentary, light, moderate and heavy activity. A short description of each category was presented and the respondent was asked to report the amount of time spent working in the given activity categories. The hours were added together to produce the total score for the PHWAI, activity at home and activity at workplace.

Study design

Evaluation of test-retest reliability

Test-retest reliability was studied for (a) the total score for the Leisure Time Physical Activity Instrument, (b) separately for the categories of light, moderate and vigorous activities, and for (c) the total score for the Physical Activity at Home and Work Instrument, and (d) separately for the activity at home and at workplace. The patients were asked to fill in the questionnaires on two occasions, separated by one to two-week intervals.

Evaluation of construct validity

Three measures were chosen for evaluation of construct validity. An older instrument measuring overall physical activity [19,20] and frequently used in clinical practice for patients with musculoskeletal disorders, and the six-minute walk test [21,22], assumed to assesses overall physical functioning in

patients with FM and frequently used in studies of physical functioning in patients with FM were assumed to be associated with the LTPAI. No association between the LTPAI and aerobic capacity was expected, as self-reported activity level in sedentary people does not appear to significantly correlate with aerobic capacity [1], but the relationship was studied. No relevant instrument for evaluation of construct validity of PAHWI was found.

Overall physical activity. The instrument chosen comprised six activity levels [19,20], including both leisure time and domestic activities: sedentary (categories 1 – 2), light (category 3), moderate (category 4), strenuous activity three hours a week (category 5) and strenuous activity several times a week (category 6). A higher activity intensity level yields a higher score. The instrument has originally been designed to measure overall physical activity in older people (PAOP).

Six-minute walk test. The six-minute walk test has previously been shown to possess satisfactory reliability for patients with FM [23], and a significant association between self-reported time for physical activity in older people has been found [24].

Aerobic capacity. Aerobic capacity was estimated by measuring heart rate during sub-maximum work performed on a bicycle ergometer until exhaustion. Heart rate and blood pressure were monitored during the test. Oxygen uptake ml/kg/min was calculated [25].

Study population

Patients with FM who had visited the Physical Therapy Department at Sahlgrenska University Hospital during the recent years were contacted. The inclusion criteria were female patients with FM, fulfilling the ACR criteria for fibromyalgia [26] and being 30 to 65 years of age. The exclusion criteria were other severe diseases. Thirty-seven patients agreed to participate in the study. Their ages ranged from 32 to 64 years and their mean age was 46 years (SD 8.4, median 45 years). Thirteen per cent were born outside Sweden. The demographic data are presented in Table I and habitual physical activities are presented in Table II. All 37 subjects completed the physical activity instrument [24] and the six-minute walk test [23], while two subjects were not included in the examination of oxygen uptake due to the use of beta-blockers for hypertension.

The measures used to evaluate construct validity were obtained at the appointment at the clinic. The LTPAI and PAHWI were sent to 29 patients 7 – 14 days before that appointment with a request to fill in the questionnaires and to return them by mail immediately after the completion. Eight patients were sent the questionnaires after they had visited the clinic and they were asked to fill them in twice with a two-week interval and to return them after each completion. One protocol was not correctly filled in and three patients did not fill in the protocols twice as requested. As a result, 33 protocols (89%) were included in the examination of test-retest reliability. The mean interval between the completion of the questionnaires was 13 days (SD 6.2), and the median interval was also 13 days. The drop-outs did not differ significantly from the patients participating in the reliability analysis.

Table I. The study population, $n = 37$.

	Mean (SD)
Age, years	46 (8.4)
Symptom duration, years	11 (5.9)
Tender points, number	15 (2.1)
	n (%)
Education	
$\leqslant 9/10-12/\geqslant 12$ years	10 (27)/13 (35)/14 (38)
Employment	
Part time/full time	8 (22)/4 (11)
Maternal leave/student	2 (5)/1 (3)
Sick leave	
Part time/full time	8 (22)/2 (5)
Disability pension	
Part time/full time	6 (17)/18 (49)
Drugs	
Simple analgesic	24 (65)
NSAID	6 (16)
Psychotropics*	20 (54)
Beta-blockers	2 (5)
Current smoker	10 (27)

* Antidepressants, sedatives

Table II. Physical leisure time activities, reported by the study population, $n = 37$.

Walks outdoors	32
Pool exercise/swimming	15
Cycling	14
Gymnastic, dance, movements, golf	6
Gardening, domestic work	4
Muscle strength training	4

Statistics

The test-retest reliability is expressed as the differences between the readings (test 1 – test 2) and SD of the differences, the Intraclass Correlation Coefficient [27], 95% confidence intervals for ICC and the intra-individual SD [28]. Kappa statistics [29] was used for the analysis of vigorous activities as only categorical data was scored on that activity level.

Wilcoxon's signed rank test was chosen to analyse systematic differences in the variables between the two occasions. Associations between variables were calculated using Spearman's correlation coefficient. All the tests were two-tailed and conducted at the 5% significance level.

Results

Activity level

All the activity level categories of the LTPAI and PAHWI were covered by the study sample, implying relevance of the questions for the population studied. Light activities, such as walks outdoors, pool exercise and cycling were most common leisure time activities, see Table II. The mean time devoted to leisure time physical activity was 5.9 hours a week, ranging from 0 to 21 hours, the median being 5.0 hours. The mean physical activity at home amounted to 15.0 hours a week, ranging from 0 to 64 hours, the median being 14 hours. The mean activity at work amounted to 11.4 hours a week, ranging from 0 to 40 hours, the median being 0 hours. See Table III.

Test-retest reliability

LTPAI. The mean differences, standard deviations of the differences, ICC and 95% confidence intervals for ICC and the intra-individual SD are presented in Table IV. The ICCs were satisfactory for the LTPAI total score (0.86), for the light- (0.95) and the moderate-activity (0.82) categories. No patient scored on the third step (more than four hours a week) of the vigorous activities. As only the first two steps were scored on, the data was regarded as categorical data, and kappa statistics was used. Kappa was 0.58, indicating moderate association [29]. No systematic differences were found for the protocols completed on two occasions, analysed using Wilcoxon's signed rank test.

Table III. The scorings at the first occasion, $n = 33$.

	Mean (SD) (hours)	Range (hours)
Leisure time physical activity		
Total hours	5.9 (4.1)	0–21
Light	3.9 (3.8)	0–20
Moderate	1.7 (1.9)	0–7
Vigorous	0.3 (0.6)	0–3
Physical activity at home		
Total hours	15.0 (12.4)	0–64
Light	8.5 (8.5)	0–30
Moderate	6.3 (7.0)	0–30
Strenuous	0.2 (0.7)	0–4
Physical activity at work		
Total hours	11.4 (14.2)	0–40
Sedentary work	5.3 (10.8)	0–40
Light	3.7 (8.6)	0–35
Moderate	1.5 (7.0)	0–40
Heavy	0.9 (5.2)	0–30

PAHWI. The ICC for the total score of the PAHWI (0.91), and for the subscales for home (0.86) and workplace activity (0.89) was satisfactory, see Table IV. No systematic differences were found when analyzed using Wilcoxon's signed rank test.

Construct validity

Spearman's correlation coefficient revealed a significant association between the LTPAI and the PAOP (r_s 0.39, $p = 0.017$) and the six-minute walk test (r_s 0.40, $p = 0.014$), respectively, implying some degree of association with these instruments. The association with the oxygen uptake was not significant (Table V).

Discussion

Two new instruments, the Leisure Time Physical Activity Instrument and Physical Activity at Home and Work Instrument were designed. The LTPAI measures the amount of time an individual devotes to physical activity during leisure time. The reports of the participants' physical activities showed that light or moderate activity levels, such as outdoor walks, pool-exercise, swimming and cycling, were most common in this population, which corresponds with the results of previous studies [10–12]. In this study, light-intensity activities represented 66% (3.9 hours a week) of the total amount of time devoted to leisure time physical activity, moderate intensity activities represented 29% (1.7 hours a week), while vigorous activities only represented 5% (0.3 hours a week). All the activity categories of the LTPAI and the PAHWI were scored by the study population, implying satisfactory face validity for patients with FM.

Assessment of test-retest reliability consists of determining that a scale yields reproducible and consistent results. The test-retest reliability was analysed by ICC, kappa, the intra-individual SD and Wilcoxon's signed rank test. The high ICCs indicated satisfactory [30] stability for the total score and for the light- and moderate-activity categories. Kappa statistics was chosen for the test-retest analysis of the vigorous activity level, as it could be analyzed as categorical data, and the results indicated moderate stability [29]. A previous study has suggested that sedentary adults may overestimate the intensity of their exercise, specifically when it comes to higher intensities [31], and this suggestion may correspond with our finding that the subscales of light- and moderate intensity activities appeared to

Table IV. The Leisure Time Physical Activity Instrument (LTPAI) and Physical Activity at Home and Work Instrument (PAHWI). The means and standard deviations of the differences, the Intraclass Correlation Coefficients (ICC), 95% confidence intervals for the ICC and the intra-individual SD, $n = 33$.

	Difference Mean (SD)	Intra-individual SD	ICC	95% C.I.
LTPAI, total score	0.4 (2.3)	1.60	0.86	0.73 – 0.93
Light	0.4 (1.3)	0.92	0.95	0.89 – 0.97
Moderate	0.1 (1.1)	0.75	0.82	0.66 – 0.90
Vigorous	− 0.1 (0.7)	0.51	–*	–*
PAHWI, total score	− 0.5 (6.8)	4.77	0.91	0.82 – 0.96
Home	− 1.2 (6.5)	4.59	0.86	0.73 – 0.93
Work place	0.7 (6.6)	4.64	0.89	0.79 – 0.94

*ICC was not calculated for the vigorous activity.

Table V. Spearman's correlation coefficients (r_s) between the LTPAI, PAOP, six-minute walk and oxygen uptake ($n = 37$).

	Mean	SD	r_s	p-value
LTPAI, h	5.2	4.0	–	–
PAOP, 0 – 6 scale	3.0	0.7	0.39	0.02
6-minute walk, metres	518	65.2	0.40	0.01
Oxygen uptake, ml/kg/min	34	9.0	− 0.27	0.88

possess slightly higher test-retest reliability than the subscale of vigorous activity. Intra-individual standard deviation was calculated to analyze repeatability of the instrument, and it is given in the same unit as that used in the instrument, in hours. An intra-individual SD*2.77 is assumed to provide a range within which 95% of repeated measurements are found [28]. The intra-individual SD*2.77 of the total score of the LTPAI is 4.4 hours, which we find acceptable for this instrument. Wilcoxon's signed rank test did not find any systematic differences for the repeated measurements. Satisfactory reliability has also been found in previous studies of physical activity instruments, mainly examined in healthy populations. A study comparing ten physical exercise instruments found that the correlation coefficients for most instruments exceeded 0.75 [14]. A slight difference between the genders was found in a study, reporting a higher ICC for healthy women, ranging from 0.88 to 0.93, than for healthy males, ranging from 0.56 to 0.83 [4].

The association between the LTPAI and an instrument measuring physical activity for older people (PAOP), showed a significant but not a high correlation (r_s 0.39, $p = 0.02$). Different designs of the instruments can probably explain why the association between them was not higher. The PAOP includes both leisure time and domestic activities, while the LTPAI only includes leisure time activities, and the PAOP weights the categories according to their intensities, which is not done in the LTPAI. Another possible reason for the low correlation might be the small range of categories scored by the study participants on the PAOP, as they only scored on three categories (the scores 2, 3 and 4) out of the possible six categories.

The LTPAI showed some association with the six-minute walk test (r_s 0.40, $p = 0.01$). As these measures assess different aspects of functioning, the LTPAI assessing time devoted to activity, while the six-minute walk test assesses functional limitation, we find this association satisfactory. This result is in line with a study of older people, reporting the correlation of 0.44 between self-reported physical activity and the six-minute walk test [24]. As the LTPAI was not designed to measure aerobic capacity, no association was expected or found between it and oxygen uptake during a bicycle ergometer test. This result corresponds with previous studies of physical activity in sedentary people [1].

The relationship between physical activity, mood and disability has not been thoroughly studied in populations with long-lasting pain. Moreover, little is known about activity in non-employed patients in these populations. The PAHWI, measuring hours spent on physical activity at home and work was therefore designed. The ICCs of the total score, and the subscales for home and workplace activities ranged from 0.86 to 0.91, indicating satisfactory test-retest reliability, and no systematic differences were found between the two test occasions.

To conclude, the Leisure Time Physical Activity Instrument was developed to measure physical activity during leisure time in populations which do not usually engage in vigorous physical activity. The examination of test-retest reliability showed satisfactory reliability for the total score in patients with FM. However, the test-retest reliability was somewhat higher for the subscales of light and moderate activity than for vigorous activity. The LTPAI showed some association with the six-minute walk test and another physical activity instrument, while no association was found with aerobic capacity. Face validity for the Physical Activity at Home and Work Instrument was

established, and the instrument was found to possess satisfactory test-retest reliability in patients with FM.

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References

1. Lamb KL, Brodie DA. The assessment of physical activity by leisure-time physical activity questionnaires. Sports Med 1990;10:159–180.
2. Blair SN, Haskell WL, Ho P, Paffenbarger RS, Vranizan KM, Farquhar JW, Wood PD. Assessment of habitual physical activity by a seven-day recall in a community survey and controlled experiments. Am J Epidemiol 1985;122:794–804.
3. LaMonte MJ, Durstine JL, Abby CL, Irwin ML, Ainsworth BE. Physical activity, physical fitness, and Framingham 10-year risk score: The cross-cultural activity participation study. J Cardiopul Rehab 2001;21:63–70.
4. Lamb KL, Brodie DA. Leisure-time physical activity as an estimate of physical fitness: a validation study. J Clin Epidemiol 1991;44:41–52.
5. Frandin K, Grimby G, Mellstrom D, Svanborg A. Walking habits and health-related factors in a 70-year population. Gerontology 1991;37:281–288.
6. Landin-Wilhelmsen K, Wilhelmsen L, Bengtsson B-Å. Post-menopausal osteoporosis is more related to hormonal aberrations than to lifestyle factors. Clin Endocrinol 1999;51:387–394.
7. Barengo NC, Nissinen A, tuomilehto J, Pekkarinen H. Twenty-five-year trends in physical activity of 30- to 59-year-old populations in eastern Finland. Med Sci Sports Exercise 2002;34:1302–1307.
8. Guthrie JR. Physical activity: measurement in mid-life women. Acta Obstet Gynecolog Scand 2002;81:595–602.
9. Lee IM, Rexcroed KM, Cook NR, Manson JAE, Buring JE. Physical activity and coronary heart disease in women. J Am Med Assoc 2001;285:1447–1454.
10. Natvig B, Bruusgaard D, Eriksen W. Physical leisure activity level and physical fitness among women with fibromyalgia. Scand J Rheumatol 1998;27:337–341.
11. Mannerkorpi K, Ahlmén M, Ekdahl C. Six and 24-month follow up of pool exercise and education for patients with fibromyalgi. Scand J Rheumatol 2002;31:306–310.
12. Mannerkorpi K, Iversen M. Physical exercise in fibromyalgia and related syndromes. Best Pract and Res Clinic Rheumatol 2003;17:629–647.
13. Salmon J, Owen N, Bauman A, Schmitz MKH, Booth M. Leisure-time, occupational, and household physical activity among professional, skilled, and less-skilled workers and homemakers. Prevent Med 2000;30:191–199.
14. Jacobs DR, Ainsworth BE, Hartman TJ, Leon AS. A simultaneous evaluation of 10 commonly used physical activity questionnaires. Med Sci Sports Exercise 1993; 25: 81–91.
15. Ekkekakis P, Hall EE, Van Landuyt LM, Petruzzello SJ. Walking in (affective) circles: Can short walks enhance health. J Behavioral Med 2000;23:245–275.
16. Bellamy N. Validity. In: Bellamy N, edited Musculoskeletal Clinical Metrology. Dordrecht: Kluwer Academic Publishers; 1993. pp 25–29.
17. Carmines EG, Zeller RA. Reliability and validity assessment. Beverly Hills: Sage Publishing Ltd, 1979.
18. Liang MH, Jette AM. Measuring functional ability in chronic arthritis. Arth Rheumatol 1981;24:80–86.
19. Frändin K, Grimby G. Assessment of physical activity, fitness and performance in 76-year-olds. Scan J Med Sci Sports 1994;4:41–46.
20. Grimby G. Physical activity and muscle training in elderly. Acta Medica Scand 1986;Suppl. 711:233–237.
21. Mannerkorpi K, Burckhardt CS, Bjelle A. Physical performance characteristics of women with fibromyalgia. Arth Care Res 1994;7:123–129.
22. Gowans SE, deHueck A, Voss S, Silaj A, Abbey SE, Reynolds WJ. Effect of a randomized, controlled trial of exercise on mood and physical function in individuals with fibromyalgia. Arth Care Res 2001;45:519–529.
23. Mannerkorpi K, Svantesson U, Carlsson J, Ekdahl C. Tests of functional limitations in fibromyalgia syndrome: A reliability study. Arthritis Care and Research 1999;12:193–199.
24. Lord SR, Menz HB. Physiologic, psychologic, and health predictors of 6-minute walk performance in older people. Archives of Phys Med Rehab 2002;83:907–911.
25. Åstrand PO, Rodahl L. Textbook of work physiology. 2nd edn. New York: McGraw Hill, 1977.
26. Wolfe F, Smythe HA, Yunus MB, Bennett RM, Bombardier C, Goldenberg DL, Tugwell P, Campbell SM, Abeles M, Clark P, Fam AG, Farber SJ, Fiechtner JJ, Franklin CM, Gatter RA, Hamaty D, Lessard J, Lichbroun AS, Masi AT, McCain GA, Reynolds J, Romano TJ, Russel TJ, Sheon RP. The American College of Rheumatology 1990 criteria for the classification of fibromyalgia. Report of the Multicenter Criteria Committee. Arthritis and Rheumatology 1990;33: 160–172.
27. Shrout P, Fleiss J. Intraclass correlations: Uses in assessing rater reliability. Psychol Bulletin 1979;86:420–428.
28. Bland JM, Altman DG. Measurement error. BMJ 1996;313: 744.
29. Altman DG. Practical statistics for medical research. 7th edn London: Chapman & Hall 1996.
30. Fleiss JL. Reliability of measurements. In: Fleiss JL, ed. The design and analysis of clinical experiments. New York: John Wiley & Sons; 1986:2–31.
31. Duncan GE, Sydeman SJ, Perri MG, Limacher MC, Martin AD. Can sedentary adults accurately recall the intensity of their physical activity. Prev Med 2001;33:18–26.

Appendix 1

The Leisure Time Physical Activity Instrument – LTPAI

We would like to obtain information about your average activity level *during your leisure time over the past month*. In leisure time, we also include walking to work, to the shops and so on. You can select more than one alternative if you take part in exercise on several activity levels. We will then add up the total number of hours.

1. Sedentary leisure time activities

1. Mostly sedentary activities

2. Light physical activities which do not increase your breathing rate, such as slow walking or cycling, light swimming-pool exercise, swimming or gardening.

1. Light exercise for 0.5–1.5 hours a week
2. Light exercise for 2–4 hours a week
3. Light exercise for more than 4 hours a week. Give the number of hours _____

3. Moderate physical activity or exercise that increases your breathing rate or body temperature (perspiration), even if you can still keep talking while exercising. This includes brisk walking or cycling, walking on paths in nature, light jogging, moderately intensive gardening, pool exercise, aerobics and so on.

1. Moderate exercise for 0.5 – 1.5 hours a week
2. Moderate exercise for 2 – 4 hours a week
3. Moderate exercise for more than 4 hours a week. Give the number of hours _____

4. Vigorous exercise that noticeably increases your breathing rate and perspiration, such as fast walking, jogging, other strenuous aerobic or weight training, ball games, gardening and so on.

1. Vigorous activity for 0.5 – 1.5 hours a week
2. Vigorous activity for 2 – 4 hours a week
3. Vigorous activity for more than 4 hours a week. Give the number of hours _____

Appendix 2

The Physical Activity at Home or at Work Instrument – PAHWI

We would like to know how much you walk and lift at home and work during the space of a week. Choose the alternatives that best correspond to your working tasks during the past month and give the number of hours you have devoted to these activities.

(A) Work at home

1. Light domestic work including standing and walking,
such as cooking, ironing, picking things up _____ hours a week

2. Moderate domestic work, for example, vacuum cleaning, weekly house cleaning, baking, lifting and carrying loads of more than 3 kg, such as small children _____ hours a week

3. Heavy repairs, lifting and carrying heavy loads, such as nursing an adult relative at home and so on _____ hours a week

(B) Workplace

1. Mostly sedentary work
For the most part sedentary work, at a computer, for example _____ hours a week

2. Light yet flexible work
You have a light job, during which you walk and stand quite a lot,
include working as a nurse, in a shop, doing light industrial work. _____ hours a week

3. Moderately strenuous work
You have a fairly strenuous job, including walking, climbing stairs,
heavy lifts of more than 3 kg, such as nursing or service work, postman. _____ hours a week

4. Heavy physical work
This includes heavy physical work involving heavy lifts, in connection
with heavy nursing, stock or farming work. _____ hours a week

Total number of hours _____ a week.