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## Internet Reporting of Weekly Physical Activity Behaviors: The WIN Study

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### Abstract

**Background**—Self-report measures have been validated and are widely used. Interest currently lies in the development of simple, valid methods that can be used in any location to determine level of PA in large populations/samples. The purpose of this report is to illustrate tracking of physical activity behaviors and musculoskeletal injury reports on a weekly basis via the Internet.

**Methods**—The Women's Injury Study (WIN) methodology includes use of BRFSS-related physical activity items that are completed online by more than 800 women weekly for an average of 3 years.

**Results**—With more than 45,000 weekly physical activity and injury logs, the percentage of total logs submitted via online records is 91%. Self-reported pedometer steps are consistent with similar, smaller research samples.

**Conclusions**—This report suggests that Internet tracking is a viable means of assessing nearly real-time physical activity, describes the process of developing and monitoring self-reported physical activity behaviors via the Internet, and provides recommendations for others considering such methods.

### Keywords

injury; MVPA; tracking

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Physical activity (PA) is an important aspect of a healthy lifestyle when it is performed sufficient for a health benefit. Moderate levels of physical activity confer significant health benefits and even those who currently meet suggested PA guidelines can benefit even more by incorporating more vigorous PA.<sup>1,2</sup> Current public health federal guidelines suggest completing 30 minutes of moderate intensity PA daily or achieving 500 to 1000 MET minutes of moderate to vigorous physical activity (MVPA) each week.<sup>2</sup> PA behaviors assessment and surveillance are important because PA is a surrogate for cardiovascular fitness, which relates to morbidities and all-cause- and disease-specific mortality.<sup>2–4</sup> PA

assessment is routinely conducted at the national level with the U.S. Centers for Disease Control and Prevention's (CDC) Behavioral Risk Factor Surveillance System (BRFSS), Youth Risk Behavior Surveillance System (YRBSS), and the National Health and Nutrition Examination Survey (NHANES). Each of these methods uses self-report to assess PA behaviors in large populations and NHANES has assessed PA via accelerometry from 2003 through 2006 in persons 6 years and older.

The purpose here is to describe an Internet-based PA assessment methodology combining self-report and technology that may provide an alternative to be used in large scale populations by incurring less expense and be of little burden to participants and investigators, specifically, the Internet-based self-report PA assessment methodology used in a large NIAMS-funded investigation (Women's Injury Study; The WIN Study) of PA in free-living women. Discussion will include web design, data collection and storage, user interface, correspondence, and participant compliance to the study requirements.

### Physical Activity Assessment

Criterion PA assessment methods include direct observation and doubly labeled water. Advanced technologies (e.g., accelerometry, pedometers, GPS) have also been used as a criterion method for tracking PA behaviors, but all these methods can be expensive and burdensome.

Field PA assessment methods include self-report (e.g., diaries and questionnaires). For example, the widely used International Physical Activity Questionnaire<sup>5,6</sup> was developed as a means for quickly determining physical activity behaviors at a single point in time that could be used to compare PA behaviors across cultures. Other self-report methods include PA histories and single-item questionnaires. Bowles et al.<sup>7</sup> illustrated that historical self-reported walking, running, and jogging PA was related ( $r = 0.40-0.61$ ) to treadmill time recorded each year up to 10 years earlier. Jackson et al.<sup>8</sup> reported the construct validity of single item questionnaires by relating self-reported PA with treadmill time ( $r = 0.53$  and  $0.57$ ), results that compare favorably with more extensive PA records.

Self-report measures have been validated<sup>9</sup> and are widely used. The CDC conducts the annual Behavioral Risk Factor Surveillance System (BRFSS) that assesses physical activity and/or exercise via telephone contact. The BRFSS PA items have changed over the years as better understanding and definitions of PA behaviors are developed. Changes in terms used in the BRFSS in the past decade have resulted in interpretation difficulties. See MMWR<sup>10</sup> for illustrated changes. The BRFSS PA items have acceptable reliability and validity.<sup>11</sup> BRFSS PA questions used in WIN are presented in Table 1. Interest currently lies in the development of simple, valid methods that can be used in any location to determine level of PA in large populations/samples. Cell phone and global positioning satellite technologies are also of growing interest.

## Methods

### The WIN Study

The WIN Study is a 5-year prospective observational study funded by NIAMS. Surveillance of physical activity and injuries is achieved through a web-based survey tool, which tracks self-reported PA and injuries every week the participant is enrolled in the study. Women will be reporting PA for an average 3 years.

The WIN Study includes assessments of orthopedic history, baseline demographic data, medical and orthopedic history, history of injury, and physiologic characteristics to more accurately relate musculoskeletal injuries in free-living women to PA behaviors. The WIN

Study is the largest of its type assessing weekly, nearly real-time measures of self-reported PA obtained over a secure Internet site on approximately 900 women, age 20+ (M age =  $53.07 \pm 12.5$ ). The WIN Study PA questions mirror the CDC's BRFSS PA questions.

While engaging in PA has potential acute and chronic effects, increased PA also increases musculoskeletal injuries.<sup>12</sup> Hootman et al.<sup>13</sup> report that the more active a person is, the greater incidence of injury. Most research on PA and injury outcomes has been studied in military personnel and collegiate athletes<sup>14–17</sup> and may not have direct applicability to women in the general population. Unknown about PA and injuries is how this relates to free-living women who may or may not be physically active enough to achieve health benefit. Koplan et al.<sup>18</sup> concluded that epidemiological data are scarce on the relationship between injuries and physical activity.

Through December 1, 2008, there are 805 participants currently enrolled in the study with length of participation varying from 100 weeks to 27 weeks. The observational period will continue until spring 2010, which will add an additional 68 weeks of activity for all participants. The study recruited participants from the Dallas-Fort Worth Metroplex. Upon completion of initial eligibility screening, participants attended an orientation session where they were provided details about the study, informed about their rights as human participants, and asked to provide written consent if they wished to participate. Next, participants completed a 2-week practice phase where they entered weekly PA data into the web-based system. Participants who successfully met the requirements in this phase went on to complete an orthopedic examination. Completion of the orthopedic examination provided entry into the study for the remaining observation period. During this time participants continue to report injuries, MVPA, and steps via the web-based data collection system on a weekly basis.

### Internet Usage

In recent years, the Internet has become a predominant method for people accessing news, for talking with friends and family, for billing and finance, and for the delivery of health care. Access to the Internet is rapidly increasing due to an increase in availability of computers and the increase in the population. In 2008, the percentage of the U.S. population utilizing the internet for personal, leisure, or business activities was 72.3%, up from 44% just 8 years earlier (<http://www.internetworldstats.com/am/us/htm>). This marked increase in the amount of Internet usage over an 8-year period illustrates that society is becoming more reliant on e-commerce to coordinate and execute daily activities. Research projects have examined the efficacy of Internet or web-based tracking of aspects of human behavior and concluded that the reliability and validity of web-based tracking of self-reported behaviors depend heavily on subjects' knowledge of Internet use, directly affecting compliance with visits to the study website(s) and completion of the required questionnaires.<sup>19–22</sup>

More recently, use of the Internet as a tool for collecting information on PA has been increasing as a way to measure specific health behaviors and outcomes. Some examples of successful Internet-based PA tracking trials have examined the effects Internet reporting has on maintenance of weight loss<sup>23,24</sup> and promotion of physical activity and nutrition.<sup>25</sup> Previously, when participants were asked to report on physical activity behaviors it was done with paper forms either mailed to participants or completed at study visits. Forms completed at home by the participant without assistance of research staff are more likely to report non-responder bias,<sup>26</sup> to have multiple responses to questions, and also to misinterpret the scope of the questions leading to incorrect answers. Forms completed through a web-based interface can be answered easily and include structural code to prevent unwanted responses. Ekman et al.<sup>27</sup> report proper design of the web-based survey methods will increase participant response rates to the questionnaires.

## Web Design

The WIN Study website was constructed by an Internet hosting company contracted by The Cooper Institute over the course of the study. The website uses a secure log-in credentialing system for participants to access account information. This ensures that each participant only has access to her specific account. The website was designed for data collection from recruitment to enrollment and for use by study administrators and study participants. The initial eligibility screening questionnaire was integrated into the website to provide the recruitment staff's ease of use when screening participants who expressed study interest. All other study questionnaires (e.g., baseline questionnaire, orthopedic history questionnaire, and weekly activity log) were also included in the website. These questionnaires were completed by participants prior to actual enrollment in the study, which ensured participant familiarity with the website.

The website utilizes a real-time data capture system through a web-based SQL database, a computer language designed for the retrieval and management of data in relational database management systems, database schema creation and modification, and database object control management. Embedded code links the user website interface with the database via the Internet. Once data are entered into any of the website forms, it is immediately captured into the SQL database. The web-based data collection system is important because this provides a relatively unlimited capacity for data storage, and by collecting data from women on a weekly basis over a 3-year period, there will be hundreds of thousands of data points.

Within the database are extensive lines of code written in PHP (hypertext preprocessor) and HTML (hypertext markup language). This code controls every function of the website; from signing into the website to entering PA and injury data, sending messages to participants, and providing feedback by confirming activity log entries are submitted. Some of the basic tasks controlled by coding are implementing radio buttons for selection of answers whenever possible to control unknown responses, limiting the character size of open field text boxes to limit the response to the question, and placing validation checks for null values before any web-based form is submitted, which should limit the amount of non-item response. Coding also controls the period in which participants are allowed to submit data on activities and injuries via the website. This period, referred to as the log-in window, is open to participants each week to submit information from Saturday at 1800 (6 pm) to Monday at 2400 (12 am). The window may be changed at any time by study administrators and is effective immediately.

The database allows study administrators to edit participant information such as username and password, contact information, and address. This is applied to the participants' accounts immediately, so they may use their new log-in credentials. The database allows us to monitor when and how often participants are logging onto the website. We can see also when they are submitting their weekly PA and injury data and are able to determine who has missed reporting their data. Those who have missed reporting their PA and injuries receive an automated email sent via the website informing them that they missed the previous week's log-in of information and that they may provide a hard copy form by mail or fax. Another email is automatically sent from the website each week to all participants to remind them to log-in and complete their activity log within the log-in window. These emails are meant to increase participant adherence to the study requirements and to help keep participants motivated and engaged in the study.

## Data Collection

Data are collected primarily via the website activity log. This activity log uses BRFSS questions to assess MVPA and daily activities. Participants also wear an Accusplit Eagle

120 XL (AE) pedometer and report weekly step counts and days of pedometer wearing. We also use this questionnaire to assess injury occurrence. Although web-based data collection is the primary and preferred method of tracking PA and injuries in WIN, participants can use paper activity logs in lieu of the website when they do not have access to a computer, are on vacation, experience Internet problems, or forget to log-in within the window. Research<sup>28,29</sup> has shown that providing a combination of recording methods to participants increases response rates and we have found that this lessens the pressure placed on participants to always submit data online. Participants are given a modest supply of paper activity logs upon study enrollment in case any events occur that prevent them from completing the activity logs online. There is a risk of paper logs becoming the primary means of reporting PA for participants in lieu of online activity logs. We have tried to reduce this as much as possible by filtering out those participants who, at time of initial screening, indicate not having an email address and no access to a computer. To date, the number of enrolled participants who have submitted at least one activity log on paper is 669 or 72.95% of the original total study population and the percentage of total logs submitted on paper versus online is 8.86%.

In a subsample of 28 WIN participants, we correlated self-reported MET-minutes per week of MVPA, with MVPA assessed with the Walk4Life MVP pedometer. The correlation (.41,  $p < .03$ ) between self-reported MET-minutes per week and Walk4Life-recorded MVPA minutes converted to MET-minutes per week is about mid-range for the validities of such indices reported by Yore et al.,<sup>30</sup> where they report validity coefficients ranging between .30 and .50. As further evidence that WIN participants are self-reporting reasonable steps is that with more than 45,000 weekly pedometer reports, WIN participants average approximately 42,000 steps per week. Average WIN steps are reasonably close to the weekly steps reported by Bohannon<sup>31</sup> from a meta analysis across 1789 women age <65 yr ( $M=9091$ ;  $n=1789$ ) and women  $\geq 65$  years ( $M=6855$ ;  $n=549$ ).

### Incentives

We use incentives to increase participant involvement and adherence to WIN. A monetary incentive, dependent on how compliant participants are with activity log submission either online or on paper during a 4-week period, is provided. Participants receive \$10 for every 4-week period in which they completed at least 3 of 4 weeks. Those who complete 2 or fewer logs during a 4-week period will forfeit the incentive for that period. Participants are paid at 24-week intervals over the duration of the study. The maximum incentive per 24-week interval is \$60. Participants have been very compliant throughout the study. To date, 81% of total incentives paid have been at the full \$60 incentive level. At study conclusion, if a participant has completed at least 75% of their total number of possible activity logs, there is the possibility of an additional \$100 incentive. The range of total incentives throughout the study from dates when the first participant enrolled and the last participant enrolled is \$547.50 to \$340.00. Additional incentives for participation are access to health information via the website, a quarterly newsletter, health seminars on topics related to women's health, education books and other materials, pedometers, t-shirts, tote bags, and water bottles. To encourage continued enrollment and WIN study interest, we provide helpful health tips and woman-specific health links through the WIN website, including the availability of weekly step reports since initial enrollment for individual participants when logging in to the WIN website.

### Conclusions and Recommendations

The use of web-based tracking of PA and injuries has proven to be very useful, not only from a researcher's perspective, but also from the participant's viewpoint. Involvement in web-based research gives participants a way to engage in research on their time and at their

leisure. The only requirement of them is to complete a short questionnaire each week assessing activities and injuries. This can be done at home, at work, at school, or at another location where there is access to a computer.

Changes in web developers can lead to significant delays in development, implementation, and modification to any proposed website. For example, website instability in the early phases of the WIN research resulted in 100% paper activity log completion for approximately 6 weeks. Some women may have become accustomed to this or even started to prefer this method, which could have led to the high amount of paper logs still being received to date versus the online submission.

Recommendations for others developing an Internet-based tracking system include:

1. Early development of easy response questions (e.g., radio buttons, drop down, brief).
2. Extensive beta-testing of the Internet site. Choose a web-development company with experience in the methods used, including data tracking, database management, and code development in HTML, ASP, and PHP. It is also helpful to utilize a local company when possible, because limiting an Internet surveillance project to email and telephone correspondence only is not as helpful as meeting with developers face-to-face and discussing development and modifications with the use of visual aids. Both parties involved should have a greater likelihood of feeling connected to the project, enhancing vested interest in the project's success when meetings are face-to-face.
3. Implement the use of a development server and website that shadows the production server and website to allow for testing of modifications and/or additions to the website prior to placing the modified code on the production server used by participants. This will ensure that code is thoroughly tested before participants have access and full use of the newly modified or updated website.
4. A computer literacy/familiarity/comfortableness question is helpful to determine if participants are Internet-savvy prior to enrolling.
5. Comprehensive, ongoing data review for compliance. Ongoing surveillance of non-adherence takes considerable time, effort, and resources. We found that roughly 20–30 participants require contact each week for completing 2 or fewer activity logs per 4-week interval. This requires many phone calls and supplemental interviews with participants to understand the full range of barriers to submitting activity logs within the window.
6. Procedures in place to follow-up on noncompliant participants. If participants are repeatedly noncompliant in many 4-week intervals, it is the duty of staff to contact them if possible to assess their barriers to completing the activity log via the website. However, if participants miss submitting too many activity logs consecutively, they may be withdrawn from the study.
7. Provide incentives for compliant participants. This externally reinforces their behavior of completing sufficient activity logs via the website and within the log-in window. It is recommended to offer different incentives to participants. Not everyone responds well with monetary incentives; some prefer educational materials, seminars, gift cards, birthday/holiday cards, or other options.
8. Provide alternative means for data submission. Participants have the option of using paper activity logs to submit data when they do not have access to a computer for a given week. Some participants have also requested an electronic version of the

paper log so they may complete it on their computer and then email to study administrators, a cost savings for the participant and the study.

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## References

1. NIH develops consensus statement on the role of physical activity for cardiovascular health. *Am Fam Physician* 1996;54:763–4. 767. [PubMed: 8701845]
2. Physical Activity Guidelines Advisory Committee. Physical activity guidelines advisory committee report, 2008. Washington, DC: U.S. Department of Health and Human Services; 2008.
3. U.S. Department of Health and Human Services. Physical activity and health: A report of the Surgeon General. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion; 1996.
4. Institute of Medicine. Adequacy of evidence for physical activity guidelines development. Washington DC: National Academies Press; 2007.
5. Craig CL, Marshall AL, Sjoström M, Bauman AE, Booth ML, Ainsworth BE, Pratt M, Ekelund U, Yngve A, Sallis JF, Oja P. International physical activity questionnaire: 12-country reliability and validity. *Medicine and Science in Sports and Exercise* 2003;35:1381–95. [PubMed: 12900694]
6. Hallal PC, Victora CG. Reliability and validity of the International Physical Activity Questionnaire (IPAQ). *Medicine and Science in Sports and Exercise* 2004;36:556. [PubMed: 15076800]
7. Bowles HR, FitzGerald SJ, Morrow JR Jr, Jackson AW, Blair SN. Construct Validity of Self-reported Historical Physical Activity. *Am J Epidemiol* 2004;160:279–86. [PubMed: 15258001]
8. Jackson AW, Morrow JR Jr, Bowles HR, FitzGerald SJ, Blair SN. Construct validity evidence for single-response items to estimate physical activity levels in large sample studies. *Research Quarterly for Exercise and Sport* 2007;78:24–31. [PubMed: 17479571]
9. Welk, GJ. Physical activity assessments for health-related research. Champaign, IL: Human Kinetics; 2002.
10. MMWR. Prevalence of physical activity, including lifestyle activities among adults--United States, 2000–2001. *MMWR Morb Mortal Wkly Rep* 2003;52:764–9. [PubMed: 12917582]
11. Yore MM, Ham SA, Ainsworth BE, Kruger J, Reis JP, Kohl HW III, Macera CA. Reliability and validity of the instrument used in BRFSS to assess physical activity. *Med Sci Sports Exerc* 2007;39:1267–74. [PubMed: 17762359]
12. Kesaniemi YK, Danforth E Jr, Jensen MD, Kopelman PG, Lefebvre P, Reeder BA. Dose-response issues concerning physical activity and health: an evidence-based symposium. *Med Sci Sports Exerc* 2001;33:S351–S358. [PubMed: 11427759]
13. Hootman JM, Macera CA, Ainsworth BE, Addy CL, Martin M, Blair SN. Epidemiology of musculoskeletal injuries among sedentary and physically active adults. *Med Sci Sports Exerc* 2002;34:838–44. [PubMed: 11984303]
14. Jones BH, Knapik JJ. Physical training and exercise-related injuries. Surveillance, research and injury prevention in military populations. *Sports Med* 1999;27:111–25. [PubMed: 10091275]
15. Dick R, Hootman JM, Agel J, Vela L, Marshall SW, Messina R. Descriptive epidemiology of collegiate women's field hockey injuries: National Collegiate Athletic Association Injury Surveillance System, 1988–1989 through 2002–2003. *J Athl Train* 2007;42:211–20. [PubMed: 17710169]
16. National Collegiate Athletic Association. NCAA injury surveillance system. Indianapolis: National Collegiate Athletic Association; 1999.
17. Gilchrist J, Kimsey CD. Exercise-Related injuries among women: Strategies for prevention from civilian and military studies. *MMWR* 2000;49:13–33.
18. Koplán JP, Siscovick DS, Goldbaum GM. The risks of exercise: a public health view of injuries and hazards. *Public Health Rep* 1985;100:189–95. [PubMed: 3920717]

19. Oenema A, Brug J, Dijkstra A, de WI, de Vries H. Efficacy and use of an internet-delivered computer-tailored lifestyle intervention, targetingsaturated fat intake, physical activity and smoking cessation: a randomized controlled trial. *Ann Behav Med* 2008;35:125–35. [PubMed: 18363076]
20. Franko DL, Cousineau TM, Trant M, Green TC, Rancourt D, Thompson D, Ainscough J, Mintz LB, Ciccazzo M. Motivation, self-efficacy, physical activity and nutrition in college students: Randomized controlled trial of an internet-based education program. *Prev Med*. 2008 Epub.
21. Cussler EC, Teixeira PJ, Going SB, Houtkooper LB, Metcalfe LL, Blew RM, Ricketts JR, Lohman J, Stanford VA, Lohman TG. Maintenance of weight loss in overweight middle-aged women through the Internet. *Obesity (Silver Spring)* 2008;16:1052–60. [PubMed: 18309301]
22. Doyle AC, Goldschmidt A, Huang C, Winzelberg AJ, Taylor CB, Wilfley DE. Reduction of overweight and eating disorder symptoms via the Internet in adolescents: a randomized controlled trial. *J Adolesc Health* 2008;43:172–9. [PubMed: 18639791]
23. Cussler EC, Teixeira PJ, Going SB, Houtkooper LB, Metcalfe LL, Blew RM, Ricketts JR, Lohman J, Stanford VA, Lohman TG. Maintenance of weight loss in overweight middle-aged women through the Internet. *Obesity (Silver Spring)* 2008;16:1052–60. [PubMed: 18309301]
24. Doyle AC, Goldschmidt A, Huang C, Winzelberg AJ, Taylor CB, Wilfley DE. Reduction of overweight and eating disorder symptoms via the Internet in adolescents: a randomized controlled trial. *J Adolesc Health* 2008;43:172–9. [PubMed: 18639791]
25. Franko DL, Cousineau TM, Trant M, Green TC, Rancourt D, Thompson D, Ainscough J, Mintz LB, Ciccazzo M. Motivation, self-efficacy, physical activity and nutrition in college students: Randomized controlled trial of an internet-based education program. *Prev Med*. 2008 Epub.
26. Dengler R, Roberts H, Rushton L. Lifestyle surveys--the complete answer? *J Epidemiol Community Health* 1997;51:46–51. [PubMed: 9135788]
27. Ekman A, Klint A, Dickman PW, Adami HO, Litton JE. Optimizing the design of web-based questionnaires--experience from a population-based study among 50,000 women. *Eur J Epidemiol* 2007;22:293–300. [PubMed: 17206467]
28. Ekman A, Dickman PW, Klint A, Weiderpass E, Litton JE. Feasibility of using web-based questionnaires in large population-based epidemiological studies. *Eur J Epidemiol* 2006;21:103–11. [PubMed: 16518678]
29. Smith B, Smith TC, Gray GC, Ryan MA. When epidemiology meets the Internet: Web-based surveys in the Millennium Cohort Study. *Am J Epidemiol* 2007;166:1345–54. [PubMed: 17728269]
30. Yore MM, Ham SA, Ainsworth BE, Kruger J, Reis JP, Kohl HW III, Macera CA. Reliability and validity of the instrument used in BRFSS to assess physical activity. *Med Sci Sports Exerc* 2007;39:1267–74. [PubMed: 17762359]
31. Bohannon RW. Number of pedometer-assessed steps taken per day by adults: a descriptive meta-analysis. *Phys Ther* 2007;87:1642–50. [PubMed: 17911274]



**Table 1**

## BRFSS Questions Used in The WIN Study

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1)	During the past 7 days, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise? Yes No
2)	During the past 7 days, when you are at work, which of the following best describes what you do? Mostly sitting or standing Mostly walking Mostly heavy labor or physically demanding work I do not work for pay outside the house
2)	During the past 7 days, did you do <b>moderate activities</b> for at least 10 minutes at a time, such as brisk walking, bicycling, vacuuming, gardening, or anything else that causes small increases in breathing or heart rate and would not make you strain? Yes – If answer is yes, branches to a query for days per week and minutes per day No
4)	During the past 7 days, did you do <b>vigorous activities</b> 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 and would eventually make you strain? Yes – If answer is yes, branches to a query for days per week and minutes per day No
5)	During the past 7 days, did you <b>walk</b> for at least 10 minutes at a time, while at work, for recreation, to get to and from places, or for any other reason? Yes – If answer is yes, branches to a query for days per week and minutes per day No
6)	During the past 7 days, did you do activities to increase <b>muscle strength</b> or tone, such as lifting weights, using weight machines, using exercise bands, or doing pull-ups, or sit-ups? Yes – If answer is yes, branches to a query for days per week and minutes per day No
7)	Please record your weekly (Sunday through Saturday) pedometer steps: Steps per week
8)	How many days did you wear the pedometer? <i>Days</i> (After entering the number, please reset your pedometer to “0”.)

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