Physical Activity Patterns of PETE Majors: Do They Walk the Talk?

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Abstract

It is well established and supported by research that regular physical activity has positive benefits to health. Currently, there is much concern about the decreasing amount of physical activity in adults and children with a corresponding increase in obesity and morbidity/ mortality rates. This study was designed to investigate the activity patterns of physical education teacher education (PETE) majors. The purpose of the study was to raise the level of awareness for PETE majors as to the value and benefits of physical activity and allow these majors to gain a greater understanding of the need to adopt a lifestyle of being more physically active, not only for themselves, but also for the children they will teach. Seventeen first and second year physical education teacher education (PETE) majors were given a pedometer and required to report their daily steps and types of physical activity using an online reporting tool. The majors wore the pedometer for 30 days during the fall and spring semester and were given an analysis of their personal physical activities. Results indicated that in the fall study the majors were not reaching the minimum recommended level of physical activity which, after the intervention of education and an increased level of awareness in the spring semester, led to an increase in their physical activity. It appears that by the end of the study that these majors realized the importance of being physically active for a lifetime.

It has been known for hundreds of years that physical activity has positive benefits to health (Corbin & LeMasurier, 2002). Over the past several years, there is significant concern about the alarming decrease in physical activity. The U.S. Surgeon General has put out a call for action to decrease the growing epidemic of inactivity, obesity and overweight people, following a report indicating that the majority of adults are not regularly active and one-half of 12-23 year olds are not vigorously active on a regular basis (U.S. Department of Health and Human Services, 2001).

Students of today are considered "Millennials", who are characterized by rely more on working together in groups, require instant information (Internet, satellites, chat rooms, & e-mail), and are technologically savvy using their tech skills to gather information electronically rather than going to the campus library (Rooney, 2003). Many of these technological advances have led to a more sedentary lifestyle. Leslie, Sparling and Owen (2001), found that less than 40 percent of college students engage in fitness activities regularly ($\geq$ 3 days/week). Consequently, people are becoming less physically active and more overweight or obese (Elliott & Sanders, 2003).

The CDC (2001) reported that 50% of adult Americans are not sufficiently active to achieve health benefits and 29% are not active at all. Sparling, Owens, Lambert, and Haskell (2000) noted that sedentariness among all ages has become a major health problem. As work-related physical activity has decreased, due to the increased use of technology, the CDC has estimated that 61% of Americans are overweight and one in four is obese (CDC, 2001). Sparling (2003) added that 15-20% of college-aged students are sedentary beings; reporting minimal if any exercise (< 1 day/week) and the remaining 40% are irregular exercisers (1-2 days/week). The result over the past decade has been an increase in obesity and diseases leading to increases in morbidity and mortality rates (Boreham &

Riddoch, 2001). The evidence is clear, that physical inactivity has led to over one-quarter of all children in the United States being considered obese and that these obese children have a greater likelihood to grow up to become obese adults (Sparling, et.al, 2000).

Physical educators must find a better way to educate and engage children about living a healthy active lifestyle (Gray & Oslin, 2003; Portman, 2003; National Center for Chronic Disease Prevention and Health Promotion, 1997, and U.S. Department of Health and Human Services, 2001). This growing concern about physical activity levels in children and adults, has led to recent calls for increased physical education time for all students in schools as well as increased physical activity in recreational and youth sport programming (U.S. Department of Health and Human Services, 2001).

In an attempt to answer the call to action, this study targeted physical education teacher education (PETE) majors. The intent of the study was to examine their physical activity patterns while educating and raising their awareness of the same. Helping these majors know and better understand the importance of adopting a physically active lifestyle will enable them to help children and young adults become more physically active. This is supported by application and pedagogical focus Oslin, Collier, and Mitchell (2001) assessed and found that preservice teachers who can experiment and experience the essence of content knowledge and application, also appeared to possess greater understanding about how to teach and relate skills and information to students.

The Need for Physical Activity

Several researchers identified that adopting a lifestyle of regular physical activity positively contributes to weight maintenance, reduces the risk of degenerative diseases and mortality, promotes more efficient function of various bodily systems and produces an improvement in the quality of life (Bouchard, Shepard, & Stephens, 1994; Malina, 2001; National Association for Sport and Physical Education (NASPE), 2004; U.S. Department of Health and Human Services, 2001). The public health objectives as stated in *Healthy People 2010*, assume that physical activity will become habitual (Mama, 2001; U.S. Department of Health and Human Services, 2001); however, researchers have found that physical activity levels were the lowest from adolescence to adulthood (Telama, Leskinen, & Yang, 1996). These findings indicate that physical activity should not be assumed to be habitual.

The Institute of Medicine (2002) & NASPE (2004) published reports recommending 60 minutes of daily moderate-intensity physical activity (e.g. walking/jogging at a 4 to 5 mph). As a result, several researchers have been advocating for an increase in physical activity by all people to achieve health benefits and increase the quality of life (Hall, Ekkekakis, & Petruzzello, 2002; Malina, 2001; NASPE, 2004; Telama, et. al., 1996). Hatano (1993) reported that based on the research, 10,000 step/daily minimum is recommended for disease prevention. Hall, et. al. (1999) noted that it is important for the general public to clearly understand that health benefits can be achieved through modest amounts of daily physical activity.

National Association for Sport and Physical Education (NASPE)

NASPE (2004) answered the call for educational reform in 1986 and began to develop national content standards and a definition of a physically educated person. The committee developed this definition around six major focus areas. In short, "a physically active person; 1) has learned skills to perform physically; 2) knows the implications and benefits of physical activity; 3) does participate regularly in physical activity; 4) is physically fit; 5) exhibits respect for self and others while physically active; and 6) values physical activity as it contributes to enjoyment, self-expression and social interaction leading to a healthy lifestyle" (NASPE, 2004). The

development of these national standards has addressed the growing need for meaningful and significant content in physical education, which creates an environment where children can learn, reflect and assess their physical activity. It is, therefore, important that PETE majors adopt and live these standards to gain a greater understanding of their importance and potential to help children become more physically active.

Purpose

The purpose of this study was to raise the level of awareness of PETE majors to the value and benefits of physical activity and to provide these preservice teachers with an analysis of their personal physical activities. The intent of the study was for them to gain a greater understanding of the need to adopt a physically active lifestyle; not only for themselves, but also for the children they will teach.

Research question

What are the physical activity patterns of first and second year physical education teacher education majors?

Methods

Subjects and Data Collection

The study consisted of 17 first and second year physical education teacher education students. The students were enrolled in either the first year course, Fundamental Skills or the second year course, Developmental Analysis of Games Performance II, in the fall 2003. Each student was given a pedometer to wear and was instructed on setting it to their personal stride, as well as how to clear the pedometer at the end of each day. At the end of each day the students logged onto the StepTracker website and reported their steps and physical activities. The students wore the pedometers for a total of 30 days in November, which included one holiday weekend.

In the spring, the same majors were all enrolled in the course Developmental Analysis of Game Performance I, and wore the pedometer for 30 days in April, which also included one holiday weekend. The students were given a pre-test interview which consisted of reflecting on their first 30 days, receiving their average number of steps taken daily in the fall, and setting a daily step goal for the spring study. The pre-test interview concluded with the students discussing their motivation to participate in physical activity and to relate their activity patterns to the NASPE standards. The participants were instructed to logon to StepTracker each day, record the total steps taken and list the physical activities they participated in that day. StepTracker kept an accumulative total of steps taken and an activity log of physical pursuits. Once the daily goal was met, the student was to contact the researchers and set a new daily goal.

At the conclusion of the spring study, the students were given a post-test interview, which consisted of reflecting upon the last 30 days. The data sources included Step Tracker, an on-line reporting tool and semi- structured pre and post interviews. The semi-structured interviews (Bogdan & Biklen, 1998), focused on attaining their physical activity goal, barriers that prevented them from pursuing physical activity, creating awareness of their physical activity patterns and utilizing this awareness to better understand the need to create an appreciation of physical activity with their students. The interviews were audio taped and transcribed verbatim for analysis. Each participant was interviewed for approximately 45 minutes.

Research Instruments

Participants wore the Yamax Digi-Walker SW-200 (Yamax, Tokyo, Japan) pedometer to record the number of steps taken each day for 30 days. Although a number of electronic pedometers are commercially available, studies have reported that the Yamax Digi-Walker DW 500, SW 200 & 700 (Yamax, Tokyo, Japan) are considered the most accurate waist-borne instruments evaluated to date, recording 97-99 % of all steps taken under

controlled conditions (Bassett, et. al., 1996; Schneider, Crouter & Bassett, 2004). Studies using adult participants wearing recent Yamax and other brands of pedometers have shown favorable validity and reliability (Basset et al., 1996; Schneider, Crouter & Bassett, 2004).

StepTracker, the online reporting tool used, was created by software developers at the university. StepTracker was easily accessed and data could be quickly reported and results reviewed by all students (see Figure 1 and 2).

Data Analysis

Data were analyzed using a paired-sample T-test. This test was used to compare the difference in the average number of daily steps taken between the fall and spring semester. The qualitative data was analyzed and themes emerged from the pre and post interviews.

Qualitative data were analyzed using inductive analysis and individual case and subsequent cross case analyses (Merriam, 1998; Patton, 1990). The data were read and re-read to identify frequently repeating concepts. A running list of related concepts were identified and examined for conceptual links or categories. This procedure led to the construction of an initial coding system, which allowed for the extraction of the primary and peripheral themes (Bogdan & Biklen, 1998; Rubin & Rubin, 1995).

Trustworthiness

Trustworthiness and credibility (Patton, 1990) were established through peer debriefing, member checks, and triangulation of data sources (Rubin & Rubin, 1995). Member checks were carried out by first, replaying the tapes for the majors to modify and clarify any aspect of the interview and secondly, each major reading the transcript to verify interpretations. After reviewing the final narrative, there were no changes suggested from the participants. Peer debriefing was also used (Lincoln & Guba, 1985; Patton, 1990) to establish credibility of the data analysis process. Both researchers read the transcripts and documents of the daily logs independently and interpretations were subsequently compared (Bogdan & Bilden, 1998). Lastly, data were scrutinized for negative case examples that represented disconfirming evidence (Patton, 1990).

Results

The results in the fall semester indicated that the average daily steps taken by the majors (N= 17) for the 30-day period was M = 8,972.14. The significance of this data is that these PETE majors averaged 10% under the recommended 10,000 step daily minimum. The students reported being more active during the week than on the weekends when their physical activity declined.

The average daily steps taken in the spring semester by the participants (N = l7) for the 30-day period was M = 15,695.93. The average daily steps taken rose for these PETE majors (see Table 1). This may be related to a heightened awareness of the need for increased physical activity as they reflected on their first 30 days, and/or because each student set daily step goals.

In order to receive the most accurate reporting of daily steps for the fall semester, the majors were only given instructions on how to wear and operate the pedometer. The researchers intentionally did not instruct the majors about the total number of steps needed each day, in order to establish a baseline. Upon conclusion of the study, the majors were surprised at their activity levels as reflected in their Step Tracker log.

In the spring study, the majors again wore the pedometer for 30 days and the spring study was more structured. In the initial interview students were given their average steps taken from the fall semester, asked to set a daily step goal and asked what hindered them from being physically active. The majors were again instructed to self-report their daily steps and list their physical activities. The majors were instructed to provide more detail in the logs, such as length of physical activity and with whom the activities were done. This provided information about the connection between physical activity and social interaction. The pre-

test interview produced interesting reactions from the students as they talked about setting goals for the spring study and while reflecting on the barriers to their physical activity pursuits, they responded that they felt their academic work and jobs prevented them from being more active.

The following themes and reported activities emerged from the pre-test interview and the online reporting log: 1) physical activity patterns, 2) barriers to physical activity pursuits, and 3) personal motivation.

Physical activity patterns

The students were surprised when they reviewed their fall results. Most believed they were more active than what the log reflected. They responded as follows while reflecting upon their activity patterns: "I am usually at the rec for 2-2.5 hours, but in actual activity I'm uh probably doing them for an hour or half that time" Z.W. "Um, probably about an hour, depending on what it is, uh just shoot around at rec" L.C. "about an hour, weightlifting and running" T.J. "It depends on how far I run, if I run it's usually for 1/2 hour, um I will lift or do things for 1/2 hour" Y.M. "During classes, 2 hours, and then when I go to the rec. I usually spend to an hour depending on what I am doing that day" D.Y. "Um, classes time and basketball 3-4 hours" S.S.

Barriers to physical activity pursuits

Overwhelmingly, the students were quick to claim academic demands as hindering their physical activity. Students who worked felt that in addition to academic demands their workload further hindered their ability to be more physically active. Students also listed other time demands outside of work or school, including the time needed to commute to and from campus. "Uh, going to class and being at work and uh" L.C. "the drive down here" B.L. "Time, sometimes I don't have enough time to workout, I have so much studying to do I can't make it the rec sometimes" L.A.

Personal motivation

This theme emerged out of the interview data, as the students reflected on their inspirations to be physically active and their personal or professional goal. Many of the students reported that they felt a responsibility to become a role model by adopting a healthy lifestyle, being physically fit or by practicing what they will someday be preaching. "Um, would be to just live a healthy lifestyle, um, to keep fit" P.M. "Um, just you just feel better about yourself, I think..." H.C. "Um, just the major, like I want to be a physical educator, so I want to be physically fit, to keep healthy to stay in shape" B.I. "cause I know one day I'm gonna have to be a role model and uh, you can't you can't you have to be what you preach, so you can't preach something and not be that way so. . ." Z.W.

At the end of the study, the majors were interviewed and provided with the results from their recorded data. The following themes emerged from the post-test interviews; 1) Personal learning, 2) Motivation of students, and 3) Application of NASPE standards.

Personal learning

The students reflected upon the personal learning of self-selected activity patterns. This reflection allowed the students to recognize and increase their awareness for the personal activities selected. They mostly took notice of their lack of consistency and lack of weekend activity. "I learned I am very inconsistent I basically went to the recreation center and did what I wanted too...I didn't have a set plan... .uh keep my body healthy because I want to be around for a long time teaching and I can't if I am not healthy.. ."Z.W. "Um, I learned that I am random and not consistent . . . um, I teamed that I am pretty physically active on the weekdays and on the weekends I hardly do anything" D.D. "Um, noticing about myself I think that over the years I have uh, become more active um, more for myself to stay healthy and be more physically active.. ."L.C. "Um, I learned on the weekends um my steps

pretty much went down hill and well if I didn't go to the recreation center it's pretty low also I wouldn't meet my goals I found that out" T.J. "Um, I would try and balance out my physical activity more over the week. . . like a couple days I would have you know well over my goal and a couple of days I would have like a few thousand under my goal..." N.S.

Motivation of students

The next theme related to motivating students when they become teachers. They reported being invested in helping students see the relevance for being physically active as a means to remaining healthy for a lifetime and wanting them to enjoy activities outside physical education class. "Uh, basically what I learned is uh to help them set time out make uh make a plan and set goals uh, more likely to pursue physical activity" T.W. "Um, I will teach them that it's important to do activities, uh to have a healthy lifestyle..." L.C. "Um, motivate them by wearing them (pedometers), I know it motivated me some nights to,... oh well let's walk around the building a couple more times..." P.M. "Um, it's just to keep them active that way they feel better about themselves and physically they will feel better..." B.L. "Um, just try to teach them how, it helps you a lot with your health..." N.S. "Teaching them that games can be fun and a good way to exercise" Y.M. "I would like to teach them things that they would want to take outside of the class.. .things that would motivate them to workout outside of class because everyone has their own individual thing . . ."D.Y.

Application to the NASPE standards

The majors were then asked to reflect upon their physical activity patterns, relating these patterns to the NASPE national standards. As future physical educators, they reflected upon how they will encourage and mentor their students about the importance of adopting a physically active lifestyle for a lifetime. They expressed the significance of informing their students to value physical activity for health, enjoyment and social interaction, which would help them to adopt a healthy active lifestyle. "Um, they, you know a lot of organizations have sport teams and uh like leagues.. .so participate in them as much as possible.. .um, I am sure there will be a recreation, some fitness gyms or something around..." L.C. "Um, um just continue to play sports that they love. . . it will always be there because have so many leagues for older people" B.L. "Teaching them ways that games and activities can be fun and a good way to exercise for a lifetime" Y.M. "Um, try to teach them how it helps you a lot with your health, like if you are not physically active that you have poor health..." N.S. "Um, I would teach them how being active will help them in their lifetime and will help them stay healthy and live better lives. . . "L.A.

Overwhelmingly, the responses centered on encouraging students to measure and assess their physical activity patterns. They expressed the importance of not only being physically active, but that they were going to strive to make physical activity fun and enjoyable for their students. By providing a variety of physical activities that their students can enjoy, learn and adopt, these majors can help foster a greater understanding of the importance of becoming a 'physically educated person". When the students were asked to think about setting goals and what impact this study had on their preparation to be a teacher, these majors expressed their belief that teaching about physical activity should be about the students learning different activities and that these activities should be fun and interesting.

Discussion

For these PETE majors, becoming aware of their actual physical activity patterns raised their level of awareness to the importance of being physically active. It was alarming to learn that these PETE majors' overall average of steps taken daily in the fall, was under the recommended minimum of 10,000 steps per/day. For these majors, this helped them recognize their short-

comings, as many were unaware of their physical activity until they wore the pedometers and reported online each day. By the end of the study, the average daily steps taken had risen.

In the spring the majors set daily goals, which they found helpful toward increasing their physical activity. During the interview and reflection, the PETE majors realized that a good opportunity would exist for them to introduce the standards and allow their students to measure their own physical activity patterns. Once the students had an understanding of the importance of being physically active, the notion of creating and introducing activities that are new, fun, and exciting to their students seemed like a good opportunity for helping their students adopt a healthier and more active lifestyle. Therefore, it will be through this increased awareness that students and parents may begin to appreciate and adopt a healthier and more active lifestyle. As supported by current research, people who are more active during their school years are more likely to be physically active once they leave school (Freedson & Miller, 2000; Sparling, 2003; Sparling & Snow, 2002; Tannehill, 2001).

Conclusion and Implications

The health of our nation is being threatened by inactivity and physical educators have the ability to intervene. This study has enlightened these PETE and armed them with the awareness to make a difference. These PETE majors found providing a structure or increased focus on physical activity would lead students to develop and maintain meaningful physical activity, which can be beneficial for life. It becomes essential for PETE majors to develop a more positive meaning for physical activity so that they can teach their students about the need for regular physical activity. These majors have come to realize that motivation and enthusiasm are important in getting students to be physically active.

This study suggests that physical education majors need to be more physically active and should be encouraged to live the standards that their students will be encouraged to achieve. It should serve as an alarm to all physical education professionals to teach students the importance of physical activity as it relates to helping all students become physically educated and adopt a healthy active lifestyle. Introducing the NASPE standards informs and allows students to reflect upon their physical activity levels which can lead not only to increasing student awareness, but also to students taking ownership of the standards. PETE professionals need to help further the understanding that becoming a physically educated person, who adopts a lifestyle of being physically active, means learning, teaching and living it.

One implication for PETE programs is to consider recruiting students who are more physically active. Majors that are physically active understand the importance of being a physically educated person. With understanding comes the ability of these majors to identify with and assist their students in adopting a physically active lifestyle for a lifetime. As physically active individuals, these majors possess a positive attitude toward physical activity, which helps them meet the challenges of today's students with sedentary lifestyles. When PETE majors are invested in physical activity and its benefits, they are more convincing role models and better able to impact their students and their commitment to becoming physically active. Perhaps, it is time for PETE professionals to hold PETE majors accountable to walk the talk.

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Table 1

Fall and spring total and average steps taken for 30 days

Subjects	Fall Totals	Fall Average	Spring Total	Spring average
1	238879	7962.63	483767	16125.57
2	244917	82163.90	442857	14761.90
3	257869	8595.63	424568	14152.27
4	262437	8747.90	507295	16909.83
5	294186	9806.20	425224	14170.80
6	286945	9564.83	447545	14918.17
7	313680	10456.0	491491	16383.03
8	283593	9453.10	527720	17590.67
9	121362	4045.40	455541	15184.70
10	177020	5900.67	412044	13734.80
11	297595	9919.83	469137	15637.90
12	238775	10959.17	489706	16323.53
13	318176	10605.87	418272	13942.40
14	287807	9593.57	431816	14393.87
15	294338	9811.27	431668	14388.93
16	311572	10385.73	471551	15718.37
17	256643	8554.77	674482	22482.73

N = 17 Fall *M* = 8972.14
Spring *M* = 15695.93

Figure 1

The Steptracker webpage for online reporting.

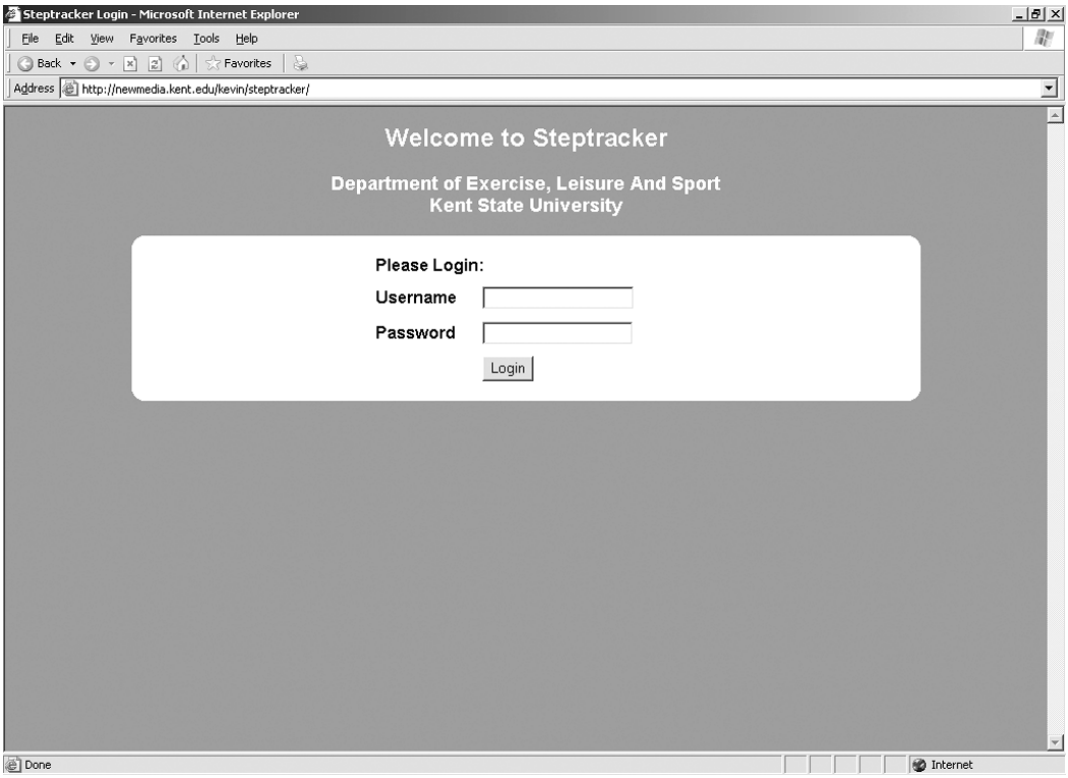
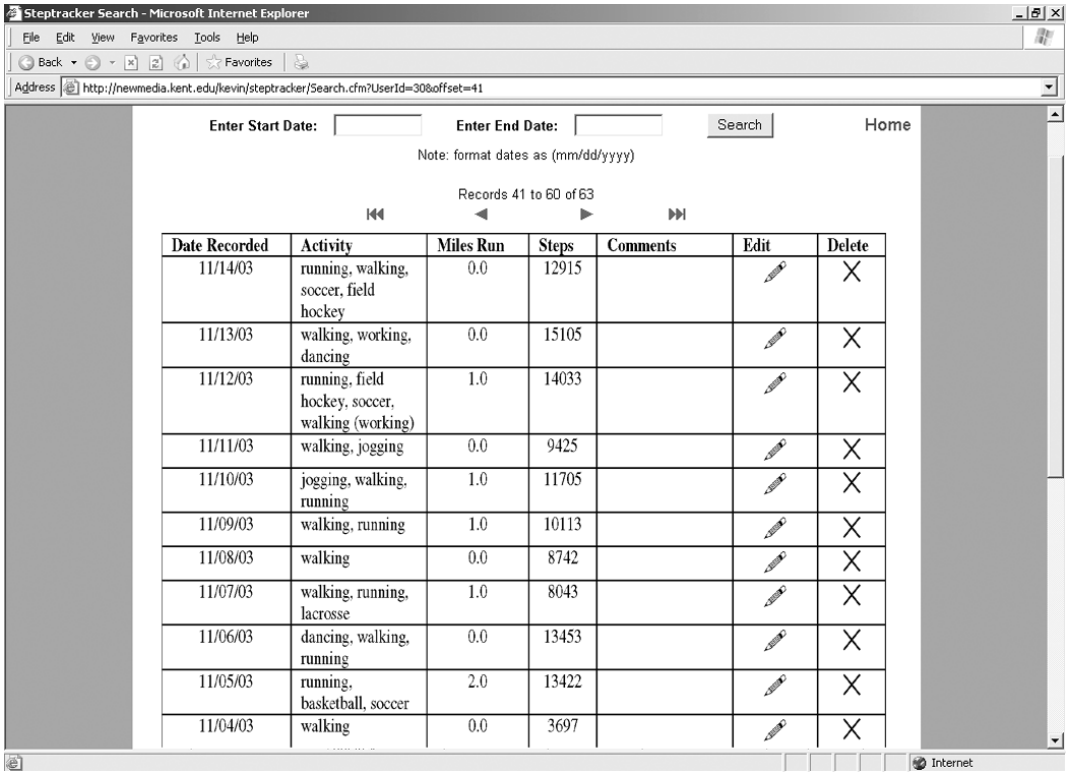


Figure 2

An Individual log



Date Recorded	Activity	Miles Run	Steps	Comments	Edit	Delete
11/14/03	running, walking, soccer, field hockey	0.0	12915			X
11/13/03	walking, working, dancing	0.0	15105			X
11/12/03	running, field hockey, soccer, walking (working)	1.0	14033			X
11/11/03	walking, jogging	0.0	9425			X
11/10/03	jogging, walking, running	1.0	11705			X
11/09/03	walking, running	1.0	10113			X
11/08/03	walking	0.0	8742			X
11/07/03	walking, running, lacrosse	1.0	8043			X
11/06/03	dancing, walking, running	0.0	13453			X
11/05/03	running, basketball, soccer	2.0	13422			X
11/04/03	walking	0.0	3697			X