Effectiveness of Point-Based Physical Activity Intervention

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Abstract

Understanding and promoting physical activity is critical to combat the growing obesity epidemic in the U.S. This study was designed to compare two 10-week physical activity programs among college students. One hundred and thirty-six undergraduate college students participated in this randomized posttest only control group study. Seventy-seven participants were randomized to one of two programs and 59 participants served as a control group. Both treatment groups completed a physical activity log every weekday for 10 weeks. The point group, however, was given a point sheet, which provided point values for different types of physical activity (based roughly on caloric expenditure). Participants also recorded the type of physical activity (lifestyle, leisure, or exercise physical activity). At the end of the 10 weeks, all participants responded to a general health survey. There were differences in physical activity points between the two treatments. An independent t-test revealed that the point group had higher lifestyle physical activity points than the traditional log group ($p < .05$). The point group also had higher mean overall points, although this difference was not statistically significant. However, there were no meaningful differences on the post-health survey among the control and treatment groups. A multiple regression analysis revealed that BMI was predicted by gender, perceived healthy weight, and total leisure physical activity points. Physical education interventions that educate about caloric expenditure and promote physical activity may be important for combating obesity.

Obesity is a fast growing pandemic around the world (Donatelle, 2005; Janssen, Katzmarzyk, Boyce, et al., 2005; Seidell, 2005) but especially within the United States. Obesity rates have increased substantially in the U.S. in recent years. In 1991, for example, only four states had an obesity prevalence of 15%, but in 2000, every state but one had an obesity prevalence of 15% or greater, and 22 states reported more than 20% obesity prevalence (CDC, 2005). According to NHANES 1999-2000, one third, 61.3 million, of U.S. adults are obese and about 15% of children and adolescents are overweight (National Institute of Diabetes and Digestive and Kidney Disease (KIDDK), 2005). Previous research also suggested that about 20% of college students were overweight or obese (Huang, Harris, Lee, Nazir, Born, & Kaur, 2003).

Obesity prevalence is an important health indicator because of its positive relationship to many other disease conditions such as diabetes, hypertension, high blood cholesterol, and cancer. Most studies indicate that mortality in general or risk of death by all causes increases with increasing obesity prevalence. In addition, the economic cost, measured in preventative, diagnostic, and treatment services as well as lost wages due to illness, disability, or death related to obesity was estimated to be $117 billion per year which is comparable to the cost of cigarette smoking (KIDDK, 2005). It is evident that obesity-related physical education efforts warrant center stage in the health education and promotion arena.

Physical activity is an important component of maintaining or achieving a healthy weight. Despite the importance of physical activity for health and obesity prevention, less than one third, about 32 million, of U.S. adults perform regular physical activity (KIDDK, 2005). Surprisingly, even American college students are relatively

inactive. Previous research suggested that 40-50% of college students were not physically active (Keating, Guan, Pinero, Bridges, 2005). Promoting physical activity should be an important focus of obesity reduction among all populations in the US.

Physical Activity Logs

Physical activity logs (PALs) are a practical method of measuring and promoting physical activity among populations (Ainsworth, 2000). The purpose of this study was to compare two 10-week PAL interventions. This study compared the physical activity differences between participants who completed a traditional PAL (treatment 1 group) and participants who completed a point-based PAL (treatment 2 group) for 10 weeks. In addition, this study compared the general physical health status of participants who completed a PAL log (treatment 1 and 2 groups) and those who did not participate in either intervention or treatment (control group).

Traditional PALs are self-reported measures similar to a personal physical activity journal. They are uncomplicated and easy for any population to utilize and they do not require substantial training or interpretation (Schmidt, Freedson, & Chasan-Taber, 2003). Previous research also suggested that social desirability concerns related to the self-reported component of PAL does not pose a major threat to the validity of the PAL responses. Researchers matched PAL responses and objective measures of physical activity such as a Computer Science Application (CSA) accelerometer and found similar results (Schmidt et al., 2003; Tudor-Locke, 2001) demonstrating an acceptable validity of PALs responses.

Although traditional physical activity logs have great potential to promote physical activity, they have important limitations. Traditional PALs do not provide participants an opportunity to learn about physical activity or weight loss. Traditional PALs are single approach interventions. This is a concern because previous research suggested that a multifactorial approachs to weight loss, which also incorporate physical activity-related health education and information, are the most effective (Katz, O'Connell, Yeh, et al., 2005).

Bouchard's PAL

Bouchard's 3-Day Physical Activity Log (Bouchard, Tremblay, Leblanc, Lortie, Savard, & Theriaualt, 1983) is a PAL that has been evaluated and used in recent research studies (e.g., Schmidt et al., 2003; Tudor-Locke, 2001). Bouchard's PAL requires participants to describe their physical activity every 15 minutes for three days by choosing from a list of activities. Each activity category has corresponding point values based on calorie expenditure. With the point values based on calorie expenditure, the participant has the opportunity to learn how different activities at different intensities may contribute to weight loss to reduce obesity.

Although Bouchard's PAL may provide participants with health education raising awareness regarding the value of different activities for weight loss, participants in previous research studies expressed concerns with this particular PAL. Participants have complained that the categories of activities are male-dominated and do not adequately represent women's daily activities. In addition, participants reported that they completed the log one to three times per day instead of every 15-minutes, which is how the authors intended the PAL to be completed (Tudor-Locke, 2001).

In summation, PALs are a relatively uncomplicated intervention for community-based weight loss. The Bouchard's PAL has unique advantages that a traditional PAL does not have, including the opportunity for health education by learning through experience what activities have the greatest potential for calorie expenditure and therefore weight loss. For example, a participant using the Bouchard's PAL may learn, through the point values, that 30 minutes of intense weight lifting burns more calories than 30 minutes of walking (Bouchard et al., 1983; Schmidt et al.,

2003; Tudor-Locke, 2001). With this information, the participant may choose activities that burn more calories and therefore may lose more weight. Although Bouchard's PAL has great potential for wide spread application among many populations, there are weaknesses with its designed use. The activities in Bouchard's PAL may not represent all demographics and lifestyles. In addition, completing Bouchard's PAL as it was designed is not practical (Tudor-Locke, 2001).

Proposed Point-Based PAL

A new PAL that incorporates the effective components of both traditional PALs and Bouchard's PALs, but one that eliminates the ineffective components may enhance community-based physical education obesity efforts. Based on the previous research, an effective PAL should provide the opportunity to record and monitor physical activity like traditional PALs. In addition, an effective PAL should provide estimates of calorie expenditures for different intensities of activities through point-values similar to Bouchard's PAL.

Unlike Bourchard's PALs, an effective PAL should be simple and general so that the participant can complete the PAL once a day as opposed to Bouchard's every 15-minutes schedule. In addition, an effective PAL should list general categories of activities that apply to all populations. The general categories of activities may be based on the primary purpose of the activity as opposed to the specific activity itself. Occupation, domestic, transportation, and leisure time are often used as domains of physical activity (Donatelle, 2005; CDC, 2005). In this study, these domains were modified to meet the needs of a college population. Exercise, leisure, and lifestyle physical activity were the general categories of physical activity used in this study's proposed point-based PAL designed for college students.

Exercise physical activity is structured physical activity which is performed with the intention to workout. Jogging, lifting weights, and doing crunches are examples of physical activity usually classified as exercise. Exercise is usually performed with the intention to improve or maintain personal conditions such as health or weight (Fahey, Insel, & Roth, 2003).

Leisure physical activity is physical activity that is performed with the intention of having fun. Games, sports, and play are examples of physical activity usually classified as leisure. Enjoyment is an important component of leisure physical activity (Fahey et al., 2003).

Lifestyle or purposeful physical activity is informal activity built into one's daily life or daily routine. Active commuting such as walking or biking to school or work and active daily options such as taking the stair instead of the elevator or house cleaning are examples of lifestyle physical activity.

Previous research has demonstrated that lifestyle physical activity performed informally throughout the day or within an active daily routine has similar health promotion and weight loss benefits to a structured exercise regiment (Braunstein, 2004; Fontaine, Barofsky, Andersen, et al., 1999; Pratt, 1999). Previous researchers have suggested that lifestyle physical activity may be related to decreased BMI, decreased risk of chronic diseases and associated mortality, and decreased upper fat distribution associated with adult weight gain, and may increase overall physical activity (Andersen, Franckowiak, Bartlett, & Fontaine, 2002; Cooper, Page, Foster, & Qahwaji, 2003; Heelan, Donnelly, Jacobsen, Mayo, Washburn, & Greene, 2005; Kumar, Riccardi, Cantor, Dalton, & Allen, 2005). In addition, lifestyle physical activity is relatively easy to perform, requires no expensive equipment or attire, and may be incorporated into one's daily routine eliminating a major time commitment (Fahey et al., 2003).

Although lifestyle physical activity is relatively easy to perform and shows similar health and weight benefits to exercise, it has seen a recent and steady decline in the U.S. The decline in lifestyle physical activity may be due to an increased dependence on cars and infrastructure

which supports automobile travel (Sallis, Frank, Saelens, & Kraft, 2004) and/or a lack of public knowledge about lifestyle physical activity's effectiveness and ease. The decline in lifestyle physical activity may help explain the concurrent rise in obesity. Lifestyle physical activity may be an especially important category or domain of physical activity for healthy weight loss in today's society.

The purpose of this study was to compare the effectiveness of two 10-week physical activity log interventions among college students. It was hypothesized that participants in the point-based PAL group would have a greater total calorie expenditure, more lifestyle physical activity points, and lower BMI than participants in a tradition physical activity log program. It was also hypothesized that participants in the point-based group would have better overall physical activity-related outcomes such as increased physical activity, increased daily calorie expenditure, and decreased BMI. Participants in the point-based PAL group were hypothesized to have better outcomes because they had the opportunity to become cognizant of the importance of lifestyle physical activity through the points allocated to those activities.

Method

A post-test only control group design was used to compare the effectiveness of two PAL interventions. A post-test only design was used to best minimize the threat of the testing effect (Cottrell & McKenzie, 2005). A convenience sample comprised of undergraduate students (N=136) in two sections of an elective health course at a university located in the southeastern U.S participated in the study.

Seventy-seven participants were randomly assigned to one of two physical activity log interventions and 59 participants served as a control group. Participants in the treatment group were randomly assigned to one of the two PAL groups. Both treatment groups completed a physical activity log every weekday for 10 weeks.

Participants randomly assigned to the traditional log group (n=38) completed a traditional physical activity log every weekday for 10 weeks. The traditional physical activity log consisted of 10 tables, one for each week of the intervention, with weekdays as the rows and type of activity and duration as the blank columns to be completed by the participant. Participants in the traditional group recorded the type and duration of physical activity they performed daily (See Appendix A).

Participants randomly assigned to the point group (n=39) completed a point-based physical activity log. The point-based physical activity log provided numeric values for different types of physical activity performed for 30 minutes. The points were based roughly on caloric expenditure of the physical activity. In addition to points, participants in the point group recorded codes associated with the type of physical activity and intensity of physical activity. The types of physical activity were grouped into the following categories: lifestyle physical activity, exercise physical activity, or leisure physical activity. The intensity of physical activity was subcategorized as light, moderate, or intense for most types of physical activity (see Appendix B).

For those in the point-based PAL intervention, the points and categories of points were described orally and summarized in a reference handout (see Appendix B). Lifestyle (code=1) was defined as physical activity that is incorporated into daily life. Transportation light (1-a; i.e. walk, light bike to class, store, out to eat), transportation moderate (1-b; i.e. speed walk, bike, roller-blade to class, store), occupation moderate (1-c; i.e. server), occupation intense (1-d; i.e. construction worker, mover), maintain home (1-e; i.e. cook, clean, garden), and take active options (1-f; i.e. stairs, park far away) are the subcategories of lifestyle physical activity based roughly on intensity. Leisure (code=2) was defined as physical activity that is, intense tennis, football), outdoors moderate (2-c; i.e. walk, hike, leisure bike, kayak, canoe), and outdoors intense (2-d; i.e. rock climb,

mountain bike, kayak) are the subcategories of leisure physical activity based roughly on intensity. Exercise (code=3) was defined as structured physical activity performed for the purpose of working out. Exercise light (code = 3-a; i.e. slow jog, speed walk, bike, most cardio machines), exercise moderate (code = 3-b; i.e. run, intense bike, traditional weight lift, jog slowly up stadium steps), and exercise intense (code = 3-c; i.e. sprint, intense weight lift, intense running up stadium steps) are the subcategories of exercise physical activity based roughly on intensity.

Participants in the point-based PAL group recorded total daily point values, weekly point totals, and associated physical activity codes. For physical activity that was not specifically listed as an example in any of the subcategories, participants were instructed to make a decision on where the physical activity best fit based on the purpose and intensity of the activity. For example, basketball was an example of leisure physical activity, play intense (2-b) but participants who "shot around" as opposed to "played hard" recorded the code appropriately as leisure physical activity, play moderate (2-a) instead of leisure physical activity, play intense (2-b).

At the end of the 10 week physical activity intervention, participants in both intervention groups (n=77) and participants in a different section of the course, the control group (n=59), responded to a general health survey. All participants received information about the study, an informed consent form, and the post health survey.

The 30-item post general health survey consisted of demographic information questions such as age, gender, university classification, GPA, and ethnicity. In addition, important health indicators were assessed with previously validated question items. Social support and alcohol consumption were measured with Behavioral Risk Factor Surveillance System (BRFSS) historical questions (Centers for Disease Control and Prevention, 2003). Vigorous and moderate activity were measured by Health Canada and National Quality Institute questions (National Quality Health Institute, 2001). Height and weight were measured using National Health Interview Survey (NHIS) body mass index (BMI) question, and BMI was later calculated based on data (National Center for Disease Statistics, 2006). General health was measured using modified BRFSS historical questions on physical health, weight control, and quality of life (Centers for Disease Control and Prevention, 2003). Lastly, the researcher included four questions on a five-point likert scale related to lifestyle physical activity, leisure physical activity, exercise physical activity, and perceived effectiveness of PALs (See Appendix C).

The study was approved by the institution's internal review board. Participation in the study was voluntary; participants were not given course credit or any incentive to participate. Although participation was voluntary, students in the treatment group were required to complete the PAL as part of course requirements. However, their participation in the study involved signing the informed consent, which allowed their assignments to be analyzed as anonymous data for this study. This step of signing the informed consent to allow their PAL to be included in this study was voluntary and not required.

Statistical Analyses

Post health survey data were coded and entered into an excel spreadsheet. For example, males were assigned a code of one and females were assigned a code of two for the gender column of the excel database. Total weekly points were recorded. In addition, the researcher added total weekly points by type of physical activity (lifestyle, exercise, and leisure) and recorded the weekly totals and overall total by type of physical activity. For statistical analyses purposes, the traditional PAL group (traditional group) descriptions of activity and time spent during activity were transcribed into quantitative data based on the point-based physical activity log assignment by a trained research assistant. For example, if a

participant in the traditional PAL group wrote "walked to class" in the activity column and "30" under the associated minutes column, the researcher assigned that activity a code of "1a" and three points. In order to minimize potential researcher bias and to enhance coding consistency, one trained research assistant completed the entire transcription of qualitative descriptions into points without external input. Like the point group, the traditional group's total weekly points, total weekly points by type of physical activity, and overall total points by type of physical activity were recorded.

A one-way ANOVA, independent sample *t*-test, and linear multiple regression analyses were used to detect differences and examine the independent variables which predicted obesity (BMI) and calorie expenditure (physical activity points). The continuous variables, total overall points, total lifestyle points, total exercise points, and total leisure physical activity points, were recorded with higher data scores representing more quantity of physical activity (duration) or more quality of physical activity (intensity); higher scores represented more total calorie expenditure categorized by type of physical activity. Group participation, gender, university classification, GPA, social support, ethnicity, and physical activity were treated as nominal data during analyses. The general physical health behavior and attitude items on a five-point likert scale from strongly agree to strongly disagree were treated as ordinal data during analyses. Statistical analyses employed SPSS for Windows XP.

Results

Sample Characteristics

The sample was primarily college freshmen (57%) and female (62%). The sample had a representative ethnic breakdown with 62% white (non-Hispanic), 13% black (non-Hispanic), 13% Hispanic, and 6% Asian. No participants classified themselves as Native American/Alaskan Native or Pacific Islander/Native Hawaiian. Participants' average age was 20 years (M=19.7; sd=2.7). The averaged BMI fell within the healthy range of 19-25 (Donatelle, 2005) (M =22.7; sd=4.2). On average, participants consumed five or more drinks in one sitting 2.2 times (sd=3.6) in the past 30 days. Seventy-seven percent of the sample reported a GPA between 3.0 and 4.0 and 85% reported the highest level of social support; 4 or more, friends or family members that would help them with emotional problems.

Differences between Groups

A One-way ANOVA was run to detect differences in responses on the post health survey and BMI among the point log group, traditional log group, and control group. Individual item analysis revealed that response to the item "In the past month, I have felt physically awful" was dependent on group (p<0.05). Surprisingly, the control group was more likely to report on the strongly disagree end of responses (1=strongly disagree; 6=strongly agree) than either of the intervention groups. There were no other meaningful differences found among the groups' post health survey responses or demographical information.

An independent sample *t*-test was used to analyze differences in physical activity points between the point physical activity log group and the traditional physical activity log group. There were many differences between the two groups; the point physical activity log group showed more points, an indicator of calorie expenditure, in every instance of important difference. The point physical activity log group reported significantly more total lifestyle physical activity points and more lifestyle physical activity points each week than the traditional group (p<0.001). In addition, the point log group reported a trend of more points in general than the traditional group. The point log group reported more total physical activity points, more total exercise points, more total leisure points, and significantly more total lifestyle physical activity points. See Table 1 for a summary of differences between groups.

Table 1.

Summary of 1-Way ANOVA and T-Test Analysis of Group Differences in Physical Activity Points, Post Health Survey Response, and BMI (M =mean; sd=standard deviation; F-Ratio; p-level).

	Point		Traditional		Control		
Variables	M	sd	*M*	*sd*	*M*	*sd*	*F* Ratio
Total Points	856	445	713	443	--	--	.652
Lifestyle Points	92.9	31.6	61.4	18.2	--	--	7.41***
Leisure Points	13.8	15.7	11.0	11.9	--	--	.805
Exercise Points	27.1	22.2	22.2	17.2	--	--	2.15
Health Survey Item	2.67	1.44	2.66	1.17	2.05	1.12	4.11*
BMI	22.3	5.2	22.4	3.4	23.2	4.1	.669

*p<0.05; **p<0.01; ***p<0.001

Note. Higher numbers of points represent more estimated energy expenditure. Lower numbers on health survey item represent more positive response.

Physical Health and Activity

A dependent sample *p*-test was run to determine if physical activity increased throughout the intervention. Week one through week three points were totaled and compared to week eight through week ten point totals and the results were not significant (p>0.05).

Two multiple linear regression analyses were run to determine the factors that best predict calorie expenditure, operationalized in this study as physical activity points, and obesity, operationalized in this study as BMI. The regression model to predict total overall points was not significant (p=0.087). The regression model to predict BMI was significant at alpha =0.05. Three independent variables were significant predictors of BMI. Twenty-eight percent of the variance in BMI was predicted by the model including total leisure physical activity points, gender, and response to a perceived healthy weight post health survey item (p<0.05). Lower BMI was significantly predicted by more leisure physical activity, being female, and responses towards the strongly disagree end of item "For my health, I need to lose weight" (1=strongly agree; 6=strongly disagree). See Table 2 for beta values and *p*-levels associated with independent variables in multiple regression analyses to predict total overall physical activity points and BMI.

Gender and perception of health weight by response to post survey item were independent predictors of BMI in a univariate regression analysis. Being female and responses towards the strongly disagree end of item "For my health, I need to lose weight" were independently predictive of lower BMI. Total leisure physical activity points were not independently predictive of BMI in a univariate regression analysis as they were in the multiple regression analysis. See Table 2 for variance values and *p*-levels in BMI univariate analyses.

Discussion

As hypothesized, there were many differences in physical activity points between the intervention groups. According to the findings, the participants in the point group showed more points overall and significantly more points in lifestyle physical activity than the traditional log group (p<0.001). Although it is unlikely, these findings may reflect an over-estimation of lifestyle physical activity points in the point group. It is

Table 2.

Multiple (β=Beta) and Univariate (R^2) Regression Analysis Summary of the Factors That Significantly Predict Total Points and BMI.

	Total point β	**BMI** β	**BMI** R^2
Male	.09	.53**	.09***
Age	.24	.27	-
Ethnicity	.14	.02	-
University classification	-.19	.17	-
GPA	.17	.06	-
Social support	.20	.14	-
Alcohol consumption	-.01	-.04	-
Perceived healthy weight	-.14	-.45*	.11***
BMI	1.5	-	-
Total points	-	.12	-
Total lifestyle points	-	.16	.02
Total leisure points	-	.33*	-
Total exercise points	-	-.21	-
Explained variance (R^2)	.50	.61**	-
Explained variance (R^2) with significant variables only	-	.28***	-

*p<0.05; **p<0.01; ***p<0.001

Note. Demographic variables and one item from post health survey included.

unlikely that there was systematic over-estimation of one type of physical activity because participants in both groups were encouraged to record all movement and activity. These findings may more likely suggest that participants who were made more cognizant of the benefits of everyday, lifestyle physical activity, through the points associated with those activities, may choose more active lifestyle options such as walking to class instead of driving. The point group may have learned through experience that lifestyle physical activity was health promoting and looked for unstructured opportunities to be active throughout the day. Because lifestyle physical activity is relatively easy and simple for most people (Pratt, 1999), population-based physical education interventions should communicate the weight-loss benefits of lifestyle physical activity such as active commuting or active daily routines through tangible points based on calories expended.

The point group also demonstrated higher overall total points and higher total leisure and exercise points than the traditional group. Although the point differences were not statistically significant, these findings may suggest that participants in the point group became more aware of the relationship between intensity of physical activity and calorie expenditure through the

assigned point values. In this study, the intensity of the activity performed predicted the points allocated to that activity; for 30-minutes of activity, high intensity weight lifting had 12 points whereas strolling or light walking had three points. Participants may have learned that the higher intensity of activities result in more calorie expenditure and found opportunities to do more intense physical activity resulting in higher point totals.

It was expected that BMI would be dependent on point totals, a measure of calorie expenditure. In this study, BMI was only dependent on leisure point totals; participants with lower BMIs performed more physical activity for the primary purpose of fun and enjoyment (i.e. play basketball) than participants with higher BMIs. It may be that healthy weight participants viewed physical activity as fun, which reinforces their likelihood to be active and maintain their healthy weight. Promoting physical activity as fun and enjoyable may be an important component of physical education weight loss programs designed for college students. Total points may predict BMI in a study longer than 10 weeks.

Although there were important significant differences between the treatment groups, there were no significant differences among the control group and the treatment groups. The findings that the intervention groups did not score significantly better on the post-health survey than the control group may be explained by the composition of the treatment and control groups. The groups came from sections of the same course and there were no measured statistically significant differences in demographic information among the groups. However, the intervention groups were surveyed on a day when attendance was required and the control group was surveyed on a day when attendance was not required. This disparity may account for the lack of difference in the control group and treatment groups on the post-health survey because of possible unobserved systemic differences between groups.

Limitations and Future Research

As with all self-reported measures, recall bias and social desirability are possible limitations (Anisworth, 2000). Recall bias was controlled in this study by requiring participants to complete their logs every day and performing random in-class checks to ensure their compliance. The social desirability bias was controlled by allowing the participants to remain anonymous. Participants in the point group were required to extrapolate their physical activity from a list of general categories. This may be viewed as a limitation if participants were inconsistent with their extrapolations. Lastly, as mentioned previously, the control group was a not a representative group of students because they were surveyed on an optional attendance day, and some of the students were absent. Therefore, the students who made up the control group may systematically differ in some ways that were not measured in this study, from the students who made up the intervention groups.

Future research should examine the effectiveness of a point-based physical activity program over a period of six months or longer. To learn more about the relationship between point totals and BMI, future research should evaluate long-term interventions. This current study was performed with college students. In order to generalize the results to other populations, future research should examine the effectiveness of point-based physical activity program in other populations such as working adults and the elderly.

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APPENDIX A

Traditional Physical Activity Log—Traditional Treatment Group

Traditional Assignment Directions

Directions: Starting today (1/24/04), you will record all of your physical activity in the physical activity daily log. Every day, you will record two sources of information; 1) type of activity you performed along with 2) the duration of time (in minutes) spent doing the activity. Include all forms of physical activity discussed in class. Separate activities and minutes with commas. See example week below.

To personally benefit from the program and to receive full credit on your assignment you must do the following: 1) Accurately report physical activity every weekday and 2) bring your log to class everyday (there will be random checks throughout the semester to assure that you are responsibly recording your actual physical activity on a daily basis).

Physical Activity Logs are due **Monday, April 20, 2004.** (On this date, you will have the opportunity to allow your log and input to be included in a research study).

EXAMPLE:			
Date	Activity Performed	Minutes	Optional Comments
M 12/27	Walk to class, play ultimate Frisbee	30, 60	FUN
T 12/28	Treadmill jog	30	
W 12/29	Walk to class, play ultimate Frisbee	30, 60	Nice to walk
R 12/30	Treadmill jog	30	
F 12/31	Walk to class	30	

Date	Activity Performed	Minutes	Optional Comments
M 1/24			
T 1/25			
W 1/27			
R 1/27			
F 1/28			

APPENDIX B

Point-Based Physical Activity Log—Point Treatment Group

Directions: Starting today (1/24/04), you will record all of your physical activity in the physical activity daily log. Every day, you will record two sources of information; 1) the codes associated with the activity you performed along with 2) the points associated with the duration and type of activity. See physical activity point sheet attached. If your activity is not listed on the activity point sheet, make a decision based on the descriptions. Separate codes and points with commas. Adjust points based on time spent. See example week 0 below.

To personally benefit from the program and to receive full credit on your assignment you must do the following: 1) Accurately report physical activity every weekday and 2) bring your log to class everyday (there will be random checks throughout the semester to assure that you are responsibly recording your actual physical activity on a daily basis).

Physical Activity Logs are due **Monday, April 20, 2004.** (On this date, you will have the opportunity to allow your log and input to be included in a research study).

EXAMPLE:				
Date	Activity Codes	Points	Total daily points	Optional Comments
M 12/27	1a, 2b	3,10	13	More fun and more points
T 12/28	3a	8	8	(did for 40 minutes so adjusted 6 to 8
W 12/29	1a, 2a	3, 6	9	More fun and more points
R 12/30	3a	6	6	
F 12/31	1a	3	3	
Total Week 0 Points: 37				

Date:	Activity Codes	Points	Total daily points	Optional Comment
M 1/24				
T 1/25				
W 1/26				
R 1/27				
F 1/28				

Total Week 1 Points: _____

ATTACHED: Physical Activity Point Sheet

1 – Lifestyle Physical Activity	Points/30 min
a transportation light (walk, light bike to class, store, out to eat)	3
b. transportation moderate (speed walk, bike, roller-blade to class, store)	6
c. occupation moderate (server)	3
d. occupation intense (construction worker, mover)	10
e. maintain home (cook, clean, garden)	3
f. take active options (stairs, park far away)	6

2 – Leisure Physical Activity	Points/30 min
a. play moderate (baseball, softball, volleyball, golf, hunt, moderate tennis)	6
b. play intense (basket ball, ultimate Frisbee, intense tennis, football)	10
c. outdoors moderate (walk, hike, leisure bike, kayak, canoe)	6
d. outdoors intense (rock climb, mountain bike, kayak)	10

3 – Exercise Physical Activity	Points/30 min
a. exercise light (slow jog, speed walk, bike, most cardio machines)	6
b. exercise moderate (run, intense bike, traditional weight lift, jog stadiums)	8
c. exercise intense (sprint, intense weight lift, intense stadiums)	12

APPENDIX C

Post Health Survey

Directions: Check the appropriate response unless otherwise indicated

1. How old are you?_____(years)

2. What is your gender?
   - ○ Male
   - ○ Female

3. What is your university classification?
   - ○ Freshman
   - ○ Sophomore
   - ○ Junior
   - ○ Senior
   - ○ Other (*specify)*_____

4. How do you describe yourself?
   - ○ White- not Hispanic
   - ○ Black- not Hispanic
   - ○ Hispanic/Latino/Latina
   - ○ Asian
   - ○ Native American/Alaskan Native
   - ○ Pacific Islander/Native Hawaiian
   - ○ Other *(specify)* _____

5. What is your overall GPA at UF?
   - ○ 3.59-4.00
   - ○ 3.00-3.49
   - ○ 2.50-2.99
   - ○ 2.00-2.49
   - ○ below 2.00

6. How many close friends or relatives would help you with your emotional problems or feelings if you needed it?
   - ○ 3 or more
   - ○ 2
   - ○ 1
   - ○ none

7. In a typical week, how often do you spend at least **20 minutes** at a time in **vigorous** physical activity? *[Vigorous physical activity involves breathing much harder than normally and feeling so warm that you are sweating from doing such things as: aerobics, using exercise machines, fast walking, running, swimming, etc.]*
   (AVERAGE TIMES PER WEEK)
   - ○ 5 or more
   - ○ 4
   - ○ 3
   - ○ 2
   - ○ 1
   - ○ 0

8. In a typical week, how often do you spend at least **30 minutes** at a time in **moderate** physical activity? [*Moderate physical activity involves breathing harder than normally and the body feeling warm from doing such things as brisk walking, golfing, heavy gardening, etc.]*
   (AVERAGE TIMES PER WEEK)
   - ○ 5 or more
   - ○ 4
   - ○ 3
   - ○ 2
   - ○ 1
   - ○ 0

9. Considering all types of alcoholic beverages, how many times during the past 30 days did you have 5 or more drinks on an occasion?_____

10. Height _____

11. Weight_____

Directions: For each item, put a check in the box that describes how often it applies to you *during the last month.*

#	Item	Poor	Fair	Good	Excellent
12	How would you say your health has been?				
13	How would you say you have managed your stress?				
14	How would you describe your physical activity?				

Directions: For each item put a check in the box that best describes how well you agree or disagree.

#	Item	strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
15	In the past month, I have felt stress free and relaxed.						
16	In the past month, I have felt physically awful.						
17	In the past month, I have done more than enough physical activity.						
18	I am in control of my life and health						
19	I have the ability to solve problems and cope with stress						
20	I enjoy doing physical activity.						
21	Lifestyle physical activity such as walking to class is my favorite physical activity.						
22	Leisure physical activity such as playing games or spending time in nature is my favorite physical activity						
23	Exercise physical activity such as lifting weights and joggings is my favorite physical activity						
24	To be healthier, I need to make changes in my behavior/life.						
25	For my health, I need to lose weight.						
26	I am a healthy weight, but I want to lose weight.						
27	I believe that keeping track of my physical activity in a daily log will increase my physical activity.						