

PHYSICAL ACTIVITY

Morning or Afternoon Physical Activity Classes?: What Time of the Day Works Best for College Students

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Abstract

College students' lives are busy with everything from schoolwork to jobs and other extracurricular activities. One aspect of their lives is being physically active, or in some cases not being physically active. Colleges and universities offer physical activity (PA) classes throughout the week on certain days and throughout the day. The purpose of this study was to better understand why and what time of the day college students enroll and participate in college PA classes. For this study, college students that enrolled and participated in morning (8am to noon) and afternoon (1pm to 5pm) were surveyed to better understand why they enroll and participate in PA classes in the morning or afternoon. It was generally found that college student enrolled and participated in PA classes during certain times of the day because of class and work schedules and that college students weren't morning people or wanted to end their day on a positive note. These results can be helpful for those that administer PA classes at their colleges and universities.

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Introduction

The literature has established that regular physical activity (PA) can serve to combat various diseases, such as cardiovascular disease, diabetes, and high blood pressure (Kim & Cardinal, 2017). Yet, with the mentioned benefits of PA, life can be busy pulling a person in many different directions and taking up the time throughout the day with PA taking a back seat to other activities. Research has been conducted, studying typically physical activity in the morning, afternoon, or evening. Many different populations and variables have been studied. For example, Silva et al. (2015) examined youth PA in free-time periods during high school days and their contribution to their daily PA. The free time periods investigated during the school day were 7:30 am to 8:30 am, 10 am to 10:30 am, 12:30 pm to 2 pm, 4 pm to 4:30 pm and 6:30 pm to 8 pm. It was reported that the female students had higher rates of PA during the day that were heavily participated in were because it gave the students a break from their studies and were free from the constraints of school and family responsibilities at home. A second study in the K-12 educational setting investigated the effects of classroom activity breaks at different times of the day on on-task behavior and PA levels in children (Broad, et al., 2023). For this study, first through third grade students participated in the study. The researcher used four different time sessions, they were: 1) morning (AM), 2) afternoon (PM), 3) both morning and afternoon, and 4) no activity breaks. Each session lasted 30 minutes in length. It was found that performing two classroom activity breaks—one in the morning and one in the afternoon—were found to have a positive influence on important PA measures such as Moderate to Vigorous Physical Activity (MVPA) and number of steps taken. The researchers also concluded that if two classroom activity breaks were not possible, one classroom activity break would be better than not having students participate in no activities.

Another variable that literature has touched upon dealing with the time of the day PA is participated in and the effects of PA on diabetes. Ma and colleagues (2022) investigated the association of MVPA and time of day with all-cause mortality among patients with type 2 diabetes. For this study, 904 participants were assigned into either a morning workout group or evening in workout group. Participants for this study had type 2 diabetes. It was concluded from

this study that the time of day a person is physically active does not affect their type 2 diabetes. Another study focusing on time-of-day PA effect on type 2 diabetes investigated two different times (morning & evening) of PA effect on males' blood glucose levels in males. For this study, 11 males participated in a low-volume high-intensity interval training (HIIT). The researchers concluded that afternoon HIIT was more effective in improving blood glucose levels. One other study relating with morning and evening PA, investigated sleep preferences of young females, 11 to 17 years of age, trajectories of morning or evening PA (Beal et al., 2016). A couple variables the investigators focused on were the chronological or gynecological ages of the female participants. The researchers concluded that the PA trajectories for the females in this study were affected by gynecological changes that their PA took place in the evenings. These studies have differing conclusions, thus leaving more research to solidify when PA can benefit those with type 2 diabetes.

One population that hasn't been studied regarding time-of-day participation in PA is college students. A college student's life is busy. They have schoolwork, which includes assignments, papers to write, research projects, and exams (Barney et al., 2014), family (Aherne, 2001), romantic relationships (Darling et al., 2007), peers, (Allan & Lawless, 2003), expectations of self and others (Deutsch & Schmertz, 2011), lack of time (Gonzalez et al., 2010), sleep deprivation (Gold & Friedman, 2000), and in some cases going to school in a different country (Pitts, 2009). Because of college students' busy lives, they have opportunities to be physically active while attending college. In some cases, this can be when students enroll in physical activity classes at their college or university. Typically, PA classes are offered two days during the week (Monday/Wednesday or Tuesday/Thursday) with Friday-only offerings. College PA classes are offered throughout the day. Thus, the purpose of this study was to better understand why and what time of the day college students enroll and participate in college PA classes.

Methods

Participants

For this study, 203 (108 morning participants and 95 afternoon participants) college students from a private university located in the

Intermountain west of the United States participated in this study. The university Institutional Review Board (IRB) granted approval to conduct this study. The age of the student's ranged from 18 to 28 years of age. The university PA coordinator along with the class instructors gave approval to conduct the study. Student consent was also secured. The participants were enrolled in beginning bowling, beginning and intermediate volleyball, beginning tennis, intermediate basketball and beginning pickleball. The structure of the class consisted of a brief warm-up, brief instruction and approximately 40 minutes of game play.

Instrumentation

An instrument specific to addressing when college students enroll and participate in PA classes (Larson, 2006) was identified and modified through a review of literature. For this study, the technique of critical incidence was used to collect students' descriptions (See Figure 1). Critical incidence presents the ability to focus on actual experiences as opposed to general impressions (Larson, 2006). This allows for a larger qualitative participant sample and fosters a substantial amount of data about experiences and behaviors considered important (Helion, 1991). Because of the nature of this study, there was two separate surveys given. For the morning PA classes, the following questions were given; (1) Please describe why you decided to take a PA class in the morning (8am to noon), and (2) Please describe benefits you receive by taking the PA class in the morning (8am to noon). The survey questions for the afternoon classes were (1) Please describe why you decided to take this PA class in the afternoon (1pm to 5pm) and (2) please describe benefits you receive by taking this PA class in the afternoon (1pm to 5pm). The critical incidence tool allows researcher the flexibility to tailor the instrument to their specific study. Administering the critical incidence methodology helped draw out of the student's specifics of why college students enrolled in either morning or afternoon PA classes.

Procedures

Upon receiving IRB and the coordinator of the college PA classes approval, convenience sampling was employed for data collection for this study. Prior to data collection the lead researcher talked with the instructors and explained the study and what the college students

would be asked to do. The researchers attended the PA classes asking for the college student's participation in the study. The researcher explained the study and survey they would be taking. For this study, the researchers created a QR code the college students could access and respond to the survey question. When the survey was completed the students would click the 'submit' button. The researchers were able to retrieve the student's comments from this survey at a later time.

Data Analysis

For this study, the data analysis consisted of the thematic content analysis. Data were analyzed using the Check and Schutt (2011) method of analyzing qualitative data, to correlate and review participants open-ended critical incidence responses to generate preliminary coding categories. Framework analysis incorporated four stages: (1) familiarization, (2) thematic, (3) identification, and (4) charting and interpretation (Rabiee, 2004). After the researchers read through the data, they discussed the themes they drew from the survey data. Concluding on four themes for eth morning and afternoon PA classes.

Results

The researchers read and re-read the Critical Incidence data to identify themes from the data. Because of the nature of the study there are benefits for taking morning and evening PA classes. Then within each of these themes are more specific themes. The following are the themes the researchers agreed upon. The themes of the benefits of taking morning PA classes are, (1) Increased Energy, Mood and Productivity, (2) Time Management and Scheduling, (3) Healthy Habits, and (4) Social Interaction. The themes for the reasons for taking morning PA classes were, (1) Schedule Fit, (2) Starting the Day Right, (3) Energy and Focus for the Students Classes, and (4) Friend and Social Reasons. The themes for the benefits of taking an afternoon PA class, (1) Relaxation and break from schoolwork, (2) Exercise and Health Benefits. The themes for the reasons for taking afternoon classes were, (1) Avoiding Early Mornings, (2) Balancing Academics and Work Commitments, (3) End of the Day Relaxation, and (4) Taking Class with Friends.

The following are the responses from the interview data for the benefits of taking a morning PA class.

Increased Energy, Mood and Productivity

“I feel like I have more energy during my other lectures, so I pay more attention,” “I find I’m more productive throughout the day and have more energy,” and “Great start for me! More focused in my classes afterwards, with a good mood boost.”

Fits Schedule

“It helps me be motivated to get an early start to my day and fit exercise into my busy schedule,” “Get it done first—good way to get up and moving,” and “Gets you prepared for the rest of the day and you can get it over with.”

Healthy Habits

“I’m better at waking up in the morning, which is healthier,” “I have motivation to wake up and go to bed on time,” and “It stops me from sleeping in super late,” and “I’ve met some fun people.”

Social Aspects

“I start my morning off by exercising in a team sport and socialize early,” “I have a lot of fun and look forward to most mornings,” and “Get to have sanctioned fights with my sister, lol.”

The following are the responses from the interview data for the reasons of taking a morning PA class.

Schedule Fit

“Only time pickleball was offered, but also because I have to stack all of my classes in the morning,” “I have clinicals all afternoon for my master’s program,” and “To be honest, it was the only time that worked in my school class schedule.”

Starting the Day Right/Morning Person

“It helps me to start my day off right and ensure I get to campus on time,” “I like to start my morning with some physical activity to help kickstart the day,” and “I’m a morning person, so doing a PA class in the morning is the best for me.”

Energy and Focus

“I’ve found that moving my body first thing in the morning wakes me up both physically and mentally,” “It energizes me in the morning, gets me excited for the day,” and “I actually find that when I exercise in the morning and get my blood pumping, I am able to focus in my classes better.”

Friends/Social Reasons

“I have a friend in this class,” “This was the time that worked with my sister so we could take it together,” and “It’s when my brother was free, and we wanted to take it together.”

The following are the responses from the interview data for the benefits of taking an afternoon PA class.

Relaxation and Break from Schoolwork

“It’s a nice way to decompress after a long day,” “PA classes help me to relax and get off some steam after a stressful day,” “End my day on a high note, a nice break from homework and school,” and “It has provided a nice time between classes for homework, improved my overall happiness, and given me something to look forward to consistently.”

Fits Schedule

“I can take morning classes, work, and then have something fun at the end of my day,” “I usually do homework in the morning, so I don’t need to change my schedule to do that,” and “It gives me more flexibility for classes I need to take earlier in the day.”

Exercise and Health Benefits

“Exercise later in the day so I can eat a lot for dinner,” “I get to exercise later in the day and play a sport that I love at the same time,” and “Easy and fun way to fit exercise later in the day that holds me accountable.”

Social Aspects

“I have met a bunch of fun new people, and I have enjoyed the class more,” “Meeting so many new people/making new friends,” and “Building social connections as I play basketball.”

The following are the responses from the interview data for the reasons for taking an afternoon PA class.

Avoid Early Mornings

“I’m definitely not a morning person, and I took this PA class in the afternoon to have fun,” “The reason I took this PA class in the afternoon is because I didn’t want to wake up super early,” and “I’m not a morning person, I stay up late, and I find it hard to wake up early.”

Balancing with Academics and Work Commitments

“I like to take my academic classes in the middle of day (10 am to 2pm) and prefer my PA class later in the day,” “I had other classes and work in the morning,” and “My academic classes are all in the morning, I don’t have time for PA class in the morning.”

End of Day Enjoyment

“Good way to end my day,” “I’d rather do something fun after a long day of hard work, so I have something to look forward to,” and “I enjoy having the last part of my day doing something I love. Really helps me.”

Discussion

The purpose of this study was to better understand why and what time of the day college students enroll and participate in college PA classes. The college students in this study discussed many reasons and benefits for enrolling and participating in morning and afternoon PA classes. The themes of benefits for taking a PA class in either the morning or afternoon had similar response. Those responses were the PA classes fit the students’ class schedule and the social aspects of the PA class. From the literature it has pointed out that college students are busy, and they have many responsibilities. For example, college students have papers to write, exams to study for and take, and a number of other school responsibilities (Barney et al., 2014). There are romantic relationships (Darling et al., 2009), spending time with peers (Allan & Lawless, 2003) and many other things vying for their time. Trying to fit PA into a college student schedule, doesn’t happen as it should be. From this study one student stated, “I can take morning classes, work, and then have something fun to do at the end of the day.” A second student expressed, “I usu-

ally do homework in the afternoon and evenings, so I don't need to change my schedule to do that." One last student stated, "I can actually take them [PA classes] because they have plenty of classes, and it fits my schedule." The two common responses that came from both the morning and afternoon groups show that the social aspect can be manifested through interacting with their classmates as students are being physically active, leading to receiving the benefits of both.

A second theme from the benefits of taking a morning or afternoon PA class was the social aspects. The literature has pointed out that the social aspects are valuable for the fact that it helps relieve stress in a person's life. Barney et al. (2014) studied college students' perceptions of their participation in PA classes on stress in their lives. The college students from this study generally found their participation in PA classes helped them manage the stress they experienced while attending college. Yet, a secondary finding from this study was that the college students were talking and socializing during their PA class, which resulted in lowering stress in their lives. The following statements from the college students in this study were, "Building social connections, fun break between school before I do homework," "spending time with friends after a day full of class and class work," and "I get to have a sanctioned fight with my sister, lol." With these benefits coming from both morning and afternoon PA class participation, these themes can allow college students enrollment in PA classes helpful with their college studies. The results from this study point out both morning and afternoon PA classes provide a wonderful opportunity for college students to socialize while in class. College students generally are social amongst their peers. This socializing among the students has the potential to help students talk through situations, classes and other matters taking place in their life (Barney et al., 2014).

The themes for the reasons for taking either morning or afternoon class were the students were either morning people, or they avoided taking morning classes. A second reason for taking morning or afternoon PA class was a good way to start the students' day, and when taking afternoon class, it was a good/positive way to end the students' day in a positive way. From this study student comments regarding taking classes in the morning were the following, "It helps me to start my day off right and ensures I get to campus on time," "I

like to start my mornings with some physical activity to help kick-start the day,” and “I prefer morning physical activity.” The student comments regarding afternoon classes were, “I’m definitely not a morning person, and I took this class to end my day with something fun,” “I’m not a morning person, I stay up late, and I find it hard to wake up early,” and “The reason I took this PA class in the afternoon is because I didn’t want to wake up super early.” For both the morning and afternoon students, their comments highlighted how PA at their designated time of the day has had a positive impact on their day. The college students PA can serve as a mechanism in assisting in their studies. With both morning and afternoon participation in PA class and it being a positive way to start and end a students’ day, there is a greater possibility of lifelong PA.

Implications

The results of this study should once again reinforce the importance of PA in a person’s life, and more specifically for college students. College students expressed taking PA classes during the morning or afternoon and how it benefitted them. Both time periods of the day (morning or afternoon) presented college students with options for them to be physically active. A second implication of this study is that as college students participate in either morning or afternoon classes, they will come to learn what time of the day they like/enjoy being physically active or what time of the day works best for them. A final implication to this study is to better inform those at colleges and universities that oversee PA programs and scheduling that they offer throughout the day many PA offerings, so that college students have many options to work around their schedules, so they can be physically active during their college experience.

Limitations

Three limitations to this study are recognized. First, the participants came from one university. Second, students not enrolled in PA classes did not participate in this study, thus not allowing comparisons between the groups. Third, the research study was conducted at a private university. Thus, the participants may not be representative of participants from other colleges or universities or geographic regions which may limit the generalizability of the findings. Thus, the conclusions and implications are limited and perhaps mostly ap-

pliable to those participants' demographics. Further research with a wider demographic would provide a richer data set to ascertain the generalizability of the conclusions and implications in further studies.

Figure 1

Morning/Afternoon PA Class Survey

Morning Survey

1. Please describe why you decided to take a PA class in the morning (8am to noon) instead of the afternoon.
2. Please describe benefits you receive by taking this PA class in the morning (8am to noon).

Afternoon Survey

1. Please describe why you decided to take this PA class in the afternoon (1pm to 5pm) instead of a morning PA class.
 2. Please describe benefits you receive by taking this PA class in the afternoon (1pm to 5pm).
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References

- Aherne, D. (2001). Understanding stress: A qualitative approach. *Irish Journal of Psychology, 22*, 176–187.
- Allan, J., & Lawless, N. (2003). Stress caused by on-line in E-learning: A developing model. *Education and Training, 45*, 564–572.
- Barney, D., Benham, L., & Haslem, L. (2014). Effects of college student's participation in physical activity classes on stress. *American Journal of Health Studies, 29*, 155–160.
- Beal, S. J., Grimm, K. J., Dorn, L. D., Susman, E. J. (2016). Morning/eveningness and physical activity in adolescent girls: Menarche as a transition point. *Child Development, 87*, 1106–1114.
- Broad, A. A., Bornath, D. P. D., Griseback, D., McCarthy S. F., Bryden, P. J., Robertson-Wilson, J., & Hazell, T. J. (2023). Classroom activity breaks improve on-task behavior and physical activity levels regardless of time of day. *Research Quarterly for Exercise and Sport, 94*, 331–343.
- Check, J., & Schutt, R. (2011). *Research methods in education*. Sage.

- Darling, C. A., McWey, L. M., Howard, S. N., & Olmstead, S. B. (2007). College student stress: The influence of interpersonal relationships on sense of coherence. *Stress and Health, 23*, 215–229.
- Deutsch, M. L., & Schmertz, B. (2011). “Starting from ground zero”: Constraints and experiences of adult women returning to college. *The Review of Higher Education, 34*, 477–504.
- Gonzalez, T., Hopper, H. H., Lee, A. S., & Lin, J. (2010). A study of correlations among yoga enhancement design and cognition of college student learning and practitioner success. *International Journal of Organizational Innovation, 2*, 271–286.
- Gold, M. A., & Friedman, S. B. (2000). Cadet basic training: An ethnographic study of stress and coping. *Military Medicine, 163*, 147–152.
- Helion, J. (1991). *A critical incident investigation of positively and negatively perceived cooperating teacher behaviors during the physical education student teaching experience* (Doctoral dissertation, Columbia University Teacher College), Dissertation Abstracts International, 314-315, UO91.
- Kim, M. S., & Cardinal, B. J. (2017). Why do university students enroll in physical activity education courses? Differential affects of required versus elective institutional policies. *International Journal of Sports and Physical Education, 3*(3), 16–26.
- Larson, A. (2006). Student perception of caring teaching in physical education. *Sport, Education and Society, 11*, 337–352.
- Ma, T., Xie, Y. J., Bennett, T., & Lee, C. D. (2022). Time-of-day moderate-to-vigorous physical activity and all-cause mortality in individuals with type 2 diabetes. *Journal of Sports Sciences, 40*, 614–620.
- Pitts, M. J. (2009). Identity and the role of expectations, stress, and talk in short-term student sojourner adjustment: An application of the integrative theory of communication and cross-cultural adaptation. *International Journal of Intercultural Relations, 33*, 450–462.
- Rabiee, R. (2004). Focus-group interview and data analysis. *Proceedings of the Nutrition Society, 63*(4), 655–660. <https://doi.org/10.1016/j.scispo.2007.12.013>
- Silva, P., Sousa, M., Sa, C., Riberio, J., & Mota, J. (2015). Physical activity in high school during ‘free-time’ periods. *European Physical Education Review, 21*, 135–148.