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UBC Undergraduate Student's Perspectives of Movement Breaks in the Classroom

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UBC STUDENT'S PERSPECTIVES ON MOVEMENT BREAKS



UBC Undergraduate Student's Perspectives of Movement Breaks in the Classroom

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Executive Summary

Long periods of sitting due to lectures and studying are perceived as the largest contributors to sedentary behaviours (Moulin & Irwin, 2017). On average, undergraduate students spend 8.23 to 13.03 hours per day being sedentary (Moulin et al., 2019). Sedentary behaviours can contribute to elevated levels of stress, anxiety, and depression (Katzmarzyk et al., 2009; Lee & Kim, 2018). Additionally, when students are inactive for more than 20 minutes, their ability to focus, comprehend and retain information decreases (Reilly et al., 2012). Movement breaks are effective physical activity interventions to combat sedentary behaviours, decrease stress, and improve attention and memory (Fenesi et al., 2018; Olmsted, 1999).

The purpose of this study was to understand UBC undergraduate student's perspectives on having movement breaks in the classroom and provide ways we can improve them. Furthermore, we wanted to find out whether UBC undergraduate students enjoy movement breaks, whether they feel mentally better and more engaged in lecture material after participating in a movement break, what type of movement breaks they are more likely to participate in, and lastly, what recommendations they have to improve movement breaks in the classroom at UBC.

A survey was conducted through Qualtrics to collect qualitative and quantitative data over a five-day period ranging from March 20 to March 25, 2021. The survey was distributed through the social media platform Instagram and was also posted on the Kinesiology 464 course announcements section on Canvas by Dr. Bundon. From the survey, we gathered 40 responses from UBC undergraduate students.

Amongst the participants that completed the survey, the majority of the perceptions of movement breaks or experience with movement breaks were very positive. Participants who hadn't partaken in movement breaks were very likely to participate and anticipate benefits in their learning, mood, and focus. While those who had participated in movement breaks largely did experience these benefits and enjoyed the movement breaks. Participants felt that their participation in movement breaks could be increased through incentives, such as bonus marks, and if the breaks were self-guided within a set time scheduled for the middle of the lecture.

Based on our findings, we have developed 4 recommendations for UBC Sports and Recreation (specifically Move UBC) to implement and to improve UBC undergraduate student's experiences with movement breaks and increase physical activity in the classroom. Firstly, our project partner should consider working with UBC faculty and staff to incorporate more self-guiding and stretching movement breaks rather than active movement breaks. Secondly, Move UBC should work with UBC faculty and staff to schedule and plan movement breaks ahead of time. Further, Move UBC should collaborate with UBC faculty and staff to implement creative ways to integrate physical activity into learning material. Finally, UBC faculty, staff and students should be educated on the benefits of movement breaks.

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Introduction

As university students spend much of their time on electronics doing homework, jobs, and leisure activities, the majority of students exhibit considerable sedentary behaviours (Lee & Kim, 2018). Sedentary behaviours can contribute to health problems such as cardiovascular diseases, cancer, and type 2 diabetes as well as elevated levels of stress, anxiety, and depression (Katzmarzyk et al., 2009; Lee & Kim, 2018). Sedentary behaviours refer to an individual's decreased energy expenditure throughout the day, like sitting or lying down (Lee & Kim, 2018). For young adults, the undergraduate years are crucial as it is a time in which many individuals build health behaviours that carry on into the rest of their adulthood (Moulin et al., 2019). Current physical activity levels of university students raise concern because 30% to 50% of them do not participate in adequate amounts of physical activity to accumulate health benefits (Keating et al., 2005). The results from a systematic review by Moulin et al. (2019) indicate that undergraduate student's average sedentary time ranges from 8.23 to 13.03 hours per day. Studies that examined sedentary behaviour, screen time and their effects on mental health found that sedentary behaviour can be associated with an increase in anxiety, depressive symptoms and low levels of self-esteem (Hoare et al., 2016; Lee & Kim, 2018). It should be the responsibility and goal of post-secondary institutions to facilitate health promotion within their community in a way that encourages physical activity and overall well-being (Okanagan Charter, 2015). Health promotion emphasizes planned change of one's lifestyle that influences health. This planned change can include a variety of strategies such as health education, social marketing, community, individual, or political action (Rootman & O'Neil, 2012). Long periods of sitting due to lectures and studying are perceived as the largest contributors to sedentary behaviours according to

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undergraduate students (Moulin & Irwin, 2017). Keating et al. (2005) also explain that students lack the motivation to participate in physical activity when the intervention is active, initiated by the student. Instead, designated movement breaks during lecture time that are initiated by the professor may be more accepted by students, as a passive intervention.

Move UBC, which is overseen by UBC Sports and Recreation, is an initiative with the goal to increase physical activity and decrease the amount of time spent sitting within the UBC community (Move UBC, n.d.) Their goal is to encourage students to explore ways they could, "Move More, Move Well, and Move Anywhere" (Move UBC, n.d.). When students are inactive for more than 20 minutes, their ability to focus, comprehend and retain information decreases (Reilly et al., 2012). Move UBC has created a "Movement Break Challenge" which is a fun, active way to increase physical activity among participants (Staff & Faculty Movement Break Challenge, n.d.). Movement breaks can be defined as designated times within a class period where students are led through short bouts of movement to get moving while also breaking up sedentary time spent during a lesson (Campbell & Lassiter, 2020). For the purpose of our study, movement breaks can be led by another student, professor, teaching assistant, or can also be self-guided, meaning you are given free will to get up and do whatever you like. Movement breaks are beneficial as it allows students the opportunity to take a break, get moving, refresh their brains, and lessen stress (Olmsted, 1999). Additionally, Fenesi et al. (2018) suggest that incorporating movement breaks during lectures induces a state of physiological arousal, thus improving on-task attention, memory for lecture material and test performance compared to non-movements breaks or no breaks at all. Having students engage in movement breaks may also promote their ability to optimally engage their attentional resources and thus become better learners.

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Although there is limited research focused on movement breaks specifically and their physical and mental benefits, there are many known benefits to physical activity, including regulating sleep patterns, increased productivity, improved concentration, memory, and attention (The Sitting Epidemic, n.d). Overall, physical activity can improve learning, as well as cognitive, mental, social, and physical well-being (The Sitting Epidemic, n.d. ; Stroth et al., 2009).

Sedentary behaviour, when enforced, can cause mood disturbance and depressive symptoms and therefore, this type of behaviour is a key potential factor in deteriorating mental health (Diamond & Byrd, 2020). The Canadian Physical Activity Guidelines recommend that adults aged 18-64 should accumulate at least 150 minutes of moderate-to-vigorous-intensity physical activity per week (“Canadian 24-Hour Movement Guidelines for Adults ages 18-64 years: An Integration of Physical Activity, Sedentary Behaviour, and Sleep”, n.d.). However, according to the World Health Organization, 1 in 3 women and 1 in 4 men do not get enough physical activity (World Health Organization, 2020).

_____Through the evaluation of movement breaks, the method of intervention and its effectiveness comes into question. Although previous studies have focused on the importance of incorporating physical activity into classrooms, these studies have only focused on younger children in elementary schools or adults in general. For instance, Martin and Murtagh (2017) looked at children ages 8 to 12 in an 8-week “Active Classroom” program. Their study concluded that the children enjoyed the movement integration into their classroom and felt it created a sense of social connection with their classmates (Martin & Murtagh, 2017). Another study looked at movement intervention for children ages 7 to 11, called “Busy Brain Breaks” (Cline et al., 2021). The results indicated that both the teachers and students had improved movement ability and fitness levels after a 10-week movement intervention (Cline et al., 2021).

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Alternatively, Cooley and Pedersen (2013) examined adults working a desk job and approaches to implement movement breaks into their day while reducing sitting time. The passive approach was a software with an icon that would appear on the employee's screen, requiring them to perform the activity before they could continue working. If the icon was ignored it would get larger and eventually turn off the monitor (Cooley & Pedersen, 2013). The active approach required the employee to click on the icon to begin the activity and was able to remove the icon from the screen without doing the activity (Cooley & Pedersen, 2013). Adults were five times more likely to engage in a passive prompt to implement physical activity than an active prompt (Cooley & Pedersen, 2013).

After examining the literature on the topic of movement breaks, it is evident that there are gaps that must be addressed. Firstly, previous research involved elementary school children or working adults, opposed to focusing on university students. Health promotion amongst undergraduate students is an area of research that requires further exploration, as undergraduate students make up a considerable portion of the population and are greatly affected by sedentary behaviour. Furthermore, there is a lot of literature on the benefits of physical activity, but not a lot is known about the benefits associated with having movement breaks. Therefore, in our study, we have chosen to focus on movement breaks in the classroom amongst undergraduate university students and the mental and cognitive health benefits.

The purpose of this study was to understand University of British Columbia(UBC) undergraduate student's perspectives on having movement breaks scheduled during their classes, including virtual classes. Additionally, we wanted to provide recommendations as to how we can improve movement breaks or other ways we can increase physical activity in the classroom. The questions this study seeks to answer include whether UBC undergraduate students enjoy

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movement breaks? Whether UBC students feel better mentally and more engaged in lecture material after participating in a movement break? What type of movement breaks UBC undergraduate students are more likely to participate in? What are UBC undergraduate student's recommendations on how movement breaks can be improved in the classroom?

Methods

Target Population

The specific population of interest for this study was UBC undergraduate students, regardless of whether or not they have participated in a movement break before during class time. As previously stated, studies have found that undergraduate students engage in approximately 8.23 to 13.03 hours of sedentary behaviours per day and do not engage in adequate amounts of physical activity, which poses a concern on an individual's physical and mental health (Keating et al., 2005; Moulin et al., 2019). Thus, it is important that an intervention, such as movement breaks, is utilized to aid this target population in meeting the Canadian Physical Activity Guidelines of 150 minutes of moderate-to vigorous-intensity physical activity per week and to lower the time spent being sedentary ("Canadian 24-Hour Movement Guidelines for Adults ages 18-64 years: An Integration of Physical Activity, Sedentary Behaviour, and Sleep", n.d.). For inclusion criteria, participants had to be current undergraduate students at UBC. We were particularly interested in undergraduate student's perspectives on movement breaks because as undergraduate students ourselves, we believe it was more easily accessible to reach out to our fellow classmates and friends to learn more about their experiences with movement breaks. We had decided to exclude graduate students from our study because it would be difficult to reach them through our social media platforms as we are not in close contact with any graduate students. Additionally, graduate student's courses are designed

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differently and do not typically have lectures structured the same way undergraduate students do, which would make it hard to evaluate the benefits and UBC student's perceptions on movement breaks. For these reasons, we believe the best option was to focus solely on undergraduate students at UBC.

Design and Data Collection

For this study, we conducted an online survey through Qualtrics, a secure online survey platform that enables the mass distribution of surveys to UBC students (Celis et al., 2020). We decided to administer a survey to recruit more participants and gain a better understanding of undergraduate's perception of movement breaks. Likewise, we decided to conduct a survey because our questions would allow for a comparison between different groups. One advantage of a survey is that due to recruiting participants through random sampling, relatively small sample sizes can be used to draw conclusions about a larger population (Mathers et al., 1998). Furthermore, by administering a survey, researchers can obtain information from participants in an efficient and flexible way (Mathers et al., 1998). Due to time constraints, data was collected over a five-day period (March 20 to March 25, 2021) until we had 40 undergraduate UBC students complete our survey. All participants were presented with a consent form and detailed information regarding the intent of the study before completing the survey (see Appendix A). Any participants that wished to withdraw their consent were able to exit out of the survey at any time. Our survey consisted of 19 questions containing a mix of quantitative and qualitative questions. Quantitative questions in the survey included Likert scales, yes or no questions, and multiple-choice questions (see Appendix B). For example, a yes or no style question was used to collect information regarding whether or not the participants have engaged in a movement break before during their class. In our survey, we had 2 qualitative questions which required

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participants to reply with short answer responses. For example, for one of the qualitative questions, we asked participants to write one recommendation they had for how movement breaks could be improved during class time at UBC. The reason we decided to include both quantitative and qualitative questions was that by utilizing two methods, rather than one alone, we were provided with a stronger and more comprehensive overview of undergraduate student's perspectives on movement breaks. As perspectives are personal, qualitative and quantitative questions are needed to properly analyze the varying perspectives and their motivations.

To recruit participants for our study, we contacted some of our fellow UBC undergraduate students. We looked at those who have had movement breaks in their classrooms and their opinions on how beneficial it was. Kinesiology 464 students had engaged in movement breaks in their classroom before, therefore, with Dr. Bundon's assistance, our fellow Kinesiology, Health Promotion and Physical Activity (KINS 464) classmates received our survey recruitment poster (see Appendix C) and a link to our survey through an announcement on Canvas. We also looked at those who have never participated in a movement break in class and surveyed whether, or not they think they would enjoy movement breaks if they did have the chance of participating in one. Furthermore, we were interested in knowing which faculties at UBC incorporate movement breaks into their lecture materials. Therefore, we had used Instagram as a platform to recruit UBC undergraduate students from different faculties at UBC. We all posted the survey recruitment poster as a post on each of our Instagram pages and also as a story. The Instagram story was up for a 24-hr period and the post stayed on our Instagram pages for a five-day period (March 20 to March 25, 2021) until we reached 40 responses. Any undergraduate UBC students on Instagram interested in taking part in our survey had to click on our survey link which we had posted in our Instagram bios. We decided to post our survey

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recruitment poster on our Instagram accounts rather than other social media platforms because we know more UBC undergraduate students through Instagram. Participation in our survey was incentivized by the entry into a draw for 3 prizes, including 2 \$25 UBC Bookstore gift cards, or a \$25 UBC Food Services gift card and one Fitbit.

Data Analysis

We used a combination of quantitative descriptive statistics and qualitative descriptive analysis to analyze the data. Descriptive statistics refers to a summary and comparison of the data (Sandelowski, 2000). We compared the data between two groups, those who have had movement breaks and those who have not had movement breaks. We used the graphs and descriptive statistics generated by Qualtrics to summarize the data through numbers, including concepts such as central tendency, further allowing us to interpret the results of our survey (Sandelowski, 2000). For our study, Likert scale questions, yes or no questions, and multiple-choice questions, where individuals must select one option, were analyzed by using descriptive statistics to determine the mean of each question and to identify the most frequent and least popular responses. For some of our Likert-type scale questions, we calculated UBC undergraduate student's perceptions of movement breaks by calculating the percentages of those who selected "strongly agree" and those who selected "somewhat agree" and adding them together.

By using qualitative descriptive analysis, researchers collect in-depth data about individual participants' opinions, perspectives, and attitudes through the use of short-answer responses (Nassaji, 2015). Qualitative analysis allows researchers to explore the data further by investigating recurring themes, patterns and concepts and then interpreting those categories (Nassaji, 2015). In terms of our study, qualitative research was integral for our analysis as we

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were able to investigate undergraduate student's perspectives and attitudes towards movement breaks and their lived experiences (Nassaji, 2015). We aimed to gain insight by administering open-ended survey questions and to use qualitative analysis to investigate similarities and differences between the responses. The short answer qualitative questions at the end of our survey were used to develop consensus and opinions on recommendations to improve movement breaks.

By having two methods of data collection, we were provided with a broad, but in-depth, overview of the perspectives of undergraduate students on movement breaks. Doyle et al. (2009) explain how utilizing a mixed-methods approach can help answer the research questions that cannot be answered by quantitative or qualitative methods alone. Administering both quantitative and qualitative methods can be useful when studying phenomena where a range of perspectives are required to answer the research questions (Doyle et al., 2009).

Results

Overall, the 40 participants who completed our survey ranged from various UBC undergraduate facilities. Although over 55% of our participants were in Kinesiology, 23.36% of our participants were in Education, 23.26% in Sciences and the rest in Arts and Applied Sciences. We included what faculty students were in to get a better indication of how movement breaks can be implemented and encouraged amongst all faculties offered at UBC, not just Kinesiology. Using the results of our survey, we could compare how many participants had and how many had not participated in a movement break before. Out of the 40 participants, 26 had participated in a movement break in the classroom, whereas 14 had not. When we asked those who have not engaged in a movement break before on a scale of 0 to 5 (5 being extremely likely) how likely they would participate in a movement break, the mean was 3.86 (See Appendix D, Figure 1). For our Likert scale question, we asked those who had participated in a movement

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break, how much they enjoyed it. On the scale, 0 was “didn’t enjoy it at all” and 5 was “enjoyed it a lot” and on average, the participants had a mean of 4.19 (See Appendix D, Figure 2). In conclusion, we found that a majority of our participants enjoyed the movement breaks in their classroom.

Although our survey indicated that the majority of our participants had enjoyed the movement break in their classroom, we asked those who had participated to list one thing they enjoyed about the movement break and one thing that they did not enjoy about the movement break. An overall occurring theme for why participants enjoyed the movement break included breaking up their sedentary behaviour, the ability to move around and the physical and mental benefits that they received from it. Some barriers to movement breaks include time concerns (such as the professors speeding, or skipping part of the lecture), intrusiveness and not being informed beforehand by the professor that there was going to be a movement break.

We asked student’s perceptions of whether or not movement breaks could be beneficial to their learning, improve their moods and help them focus. Collectively, we got similar findings from those who had and had not participated in a movement break before. When we evaluated how UBC undergraduate students perceive movement breaks to affects their mood, 92% of undergraduate students who had participated in a movement break and 92% of undergraduate students who had not participated in a movement break before both said that they thought a movement break has or would improve their mood (Appendix D, Figure 3 & 4). As Figure 3 and Figure 4 show (see Appendix D), those who had and had not participated in a movement break before report similar ratings when asked whether, or not movement breaks a) were beneficial to their learning b) improved their mood and c) helped them focus. A majority of those who had and had not participated in a movement break indicated that they both felt that movement breaks

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did or would help them focus. Data from those who had not participated in a movement break before stated that 86% thought movement breaks would help them focus (See Appendix D, Figure 3). Likewise to this percentage, of those who had participated in a movement break before, 92% felt that movement breaks did help them focus (See Appendix D, Figure 4).

However, one minor difference among those who had and those who had not participated in a movement break before was when we asked whether, or not movement breaks were beneficial to their learning; 100% of those who had not participated in a movement break before stated they anticipated it would be beneficial to their learning (See Appendix D, Figure 3 & 4). On the other hand, only 76% of those who had participated in a movement break stated that it benefited their learning (See Appendix D, Figure 3 & 4).

Lastly, we asked those who had and had not engaged in a movement break before which type of movement break they were most likely to participate in. The options included voluntary stretching movements breaks (slow mobility exercises), voluntary active movement breaks (quick cardiovascular exercises), or self-guided movement breaks (students got to choose what they wanted to do during the break). In regards to the effectiveness in the type of movement break, we saw that 47.50% of individuals preferred more self-guided movement which included choosing what the movement break entailed, 37.50% preferred voluntary stretching movements, while the remaining 15% preferred voluntary active movements (See Appendix D, Figure 5).

When looking at the responses to our open-ended questions, which asked the participants for recommendations on how movement breaks can be improved at UBC, our findings indicated that the overall theme was education, encouragement, and instruction. Many suggestions made by our participants aligned with educating students and professors on the 'why' behind the movement breaks. Providing information on the benefits of movement breaks allows for

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motivation in the students, as well as the professors for their student's well-being. Behind the idea of motivation also lies the role of encouragement within these recommendations.

Participants suggested that providing bonus marks, incentives and the frequency of movement breaks could provide students with more encouragement to participate and therefore possibly influence more general movement for that student. The consistency of movement breaks creates routine which, in turn, can affect the frequency in which students move outside of the classroom. Participants of this study also expressed the preference for movement breaks to be scheduled for the middle of every class, as they believe it will have the greatest impact. Instruction was also a key recommendation, as many students appreciate having a guideline when it comes to a movement break. Being provided with ideas or a guide to the movement break enables it to be more passive and therefore a break, while still being beneficial to their well-being and state of mind.

Discussion

Our partners, UBC Sports and Recreation, were interested in exploring student's perspectives on having movement breaks scheduled into the classroom. In addition, they wanted to know how movement breaks can be improved or other ways we could encourage more physical activity in the classroom. Our findings supported our project partners because our results allowed us to learn about student's perspectives on movement breaks and physical activity in the classroom.

As expected, our findings suggested that a majority of UBC undergraduate students in Kinesiology had participated in movement breaks in their classrooms. However, one finding that surprised us was that UBC undergraduate students in other faculties had also engaged in a movement break in their classroom before. For instance, some of our participants in the Science faculty had said that they had a movement break in classes such as Chemistry and Biology.

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This study can be compared to the study done by Cooley and Pedersen (2013) who examined sedentary behaviour in adults working a desk job. In their study, the passive prompt required the participants to perform the activity before they could continue working which gave them no choice, whereas the active prompt allowed them the freedom to choose whether they wanted to engage in the physical activity or not (Cooley and Pedersen, 2013). Although Cooley and Pedersen (2013) found that adults were five times more likely to engage in a passive prompt to implement physical activity than an active prompt, our findings indicated that UBC undergraduate students preferred voluntary movements (specifically self-guided and stretching) where they were given the choice over what type of movements they wanted to do. This is similar to the active prompt utilized by Cooley and Pedersen (2013) in that they determine whether they engage in the movement break and what the break is composed of. Alternatively, the movement breaks within a classroom are initiated by the professor, which mirrors the passive prompt (Cooley and Pedersen, 2013). Giving a hybrid of both types of prompts proposed by Cooley and Pedersen (2013), which could potentially be explored further in the future to see the comparison in adherence rates between the three methods on physical activity integration.

Our research is different from existing research done by Martin and Murtagh (2017) and Cline et al. (2021) because we looked at undergraduate students compared to children and teachers. In these studies, they found that children (Martin and Murtagh, 2017) and teachers (Cline et al., 2021) had an increase in social connection and physical fitness when they integrated movement breaks in classrooms. Although our results did suggest physical benefits to movement breaks, our study found that participants believed that movement breaks were fun and interactive, re-energizing, and allowed them the opportunity to take a mental break. In our survey when we asked our participants what was one thing they enjoyed about movement breaks, we got

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responses such as “it was fun and interactive,” “I felt re-energized and better able to focus after participating,” and “[it] allowed for a physical and mental break.” It is evident from our findings that movement breaks did have a perceived positive impact on student’s mental health.

Overall, we found that UBC undergraduate students did perceive movement breaks in the classroom to be beneficial. Hoare et al. (2016) suggested that sedentary behaviour could be linked to mood disturbances such as depression, anxiety and stress. Our findings suggest that movement breaks in the classroom are beneficial for learning, improving mood, and concentration among UBC undergraduate students (see Appendix D, Figure 3 & 4). Similar findings were found by Fenesi et al. (2018) who suggested that implementing movement breaks during lectures activates a state of physiological arousal, thereby improving attention, memory for lecture material and test performance compared to non-movement breaks or no breaks whatsoever. The findings of our study are compatible with previous work stating that increased productivity, improved concentration, and attention are important benefits of physical activity (The Sitting Epidemic, n.d).

Our first research question investigated if UBC undergraduate students enjoyed movement breaks and our results demonstrated that most students did in fact enjoy movement breaks during lectures. We asked on a scale of 0 to 5 how much students enjoyed the brief exercise, and the results displayed an average of 4.2 suggesting that a majority of participants did enjoy movement breaks. The findings of our study illustrated that UBC undergraduate students believed movement breaks were an enjoyable part of their class experience. Furthermore, our second research question explored whether or not UBC undergraduate students felt better mentally and more engaged in lecture material after participating in a movement break. One question in our survey asked if students believed movement breaks were beneficial for their

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learning, mood, as well as concentration. Our findings conclude that 92% of students who had participated in a movement break said it improved their mood, 76% said it was beneficial to their learning and 92% said movement breaks helped them focus better on lecture material (see Appendix D, Figure 4). Additionally, several responses indicated that movement breaks helped them re-focus and stay engaged throughout their lecture. Lastly, we explored what types of movement breaks students liked to participate in, such as voluntary stretching, active movements, or self-guided movement breaks. A majority of participant responses indicated that they preferred self-guided movement breaks, while a smaller portion preferred voluntary stretching and active movement breaks (see Appendix D, Figure 5). Ultimately, undergraduate students expressed that they preferred to participate in movement breaks when they are granted the opportunity to choose what type of physical activity they could do during that short period of time given.

Some limitations should be noted regarding this study. One limitation was that due to our online survey, there were a few incomplete answers and a few people stopped doing the survey halfway through. To analyze our data, we had to exclude these answers from our results to properly calculate the accurate percentages of who participated and who had not participated in movement breaks previously, as well as their perceptions. Another limitation is that participants may have forgotten if their past classes had a movement break. For instance, when we asked our participants which class they had their movement break, one participant said they couldn't remember. Likewise, participants may have remembered they had a movement break in a class a year ago, but perhaps they couldn't remember what they were feeling afterwards and whether, or not it provided benefits. Moreover, we failed to ask UBC undergraduate students in which type of lectures (60-minute lectures, 90-minute lectures, or 120+ minute lectures) they prefer

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movement breaks to be in. Future research should look at movement breaks and the length of lectures. For our study, we looked at the overall perceptions of movement breaks, however, more research on the length of lectures could help indicate which type of lectures are more suited for movement breaks.

Recommendations

Based on our findings, we have found ways to improve movement breaks in the classroom at UBC, increase physical activity in the classrooms and improve UBC undergraduate student's positive experiences with movement breaks. Consequently, this project has developed four recommendations for UBC Sports and Recreation (specifically Move UBC) to consider to help them address these improvements: (1) work with UBC faculty and staff to incorporate more self-guided and stretching movements breaks rather than active movement breaks, (2) work with UBC faculty and staff to schedule and plan movement breaks ahead of time, (3) work with UBC faculty and staff to find more creative ways to incorporate physical activity in the learning material, (4) educate UBC faculty, staff, and students on the benefits of movement breaks.

- 1) Work with UBC faculty and staff to incorporate more self-guided and stretching movement breaks rather than active movement breaks.

As our participants preferred self-guided and voluntary stretching movement breaks compared to exertive movement breaks (see Appendix D, Figure 5), we recommend UBC faculty and staff incorporate more self-guided and stretching movement breaks into their classrooms rather than active movement breaks. UBC faculty should provide a small period of time where students can choose what type of movement activity they want to do. Self-guided movement can include students choosing to stand up, or walk around the building before returning to their seats. Likewise, UBC professors could

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post a selection of stretches on their PowerPoint for the students to select what they want to do. The selection of stretches could be beneficial because there may be students who aren't aware of the different stretches they can engage in. Further, professors can put a video up of stretches for students to follow along with. Instructions by the professors should be given in terms of the types of movement and the different stretches the students can choose from. Providing a layout or guide for the students allows them to still 'break' mentally from class while engaging in the movement, and will keep participation higher in the long term.

- 2) Work with UBC faculty and staff to schedule and plan movement breaks ahead of time.

As movement breaks can improve UBC undergraduate student's moods, it is important that UBC faculty and staff incorporate movement breaks into the lectures. However, as some of our participants have mentioned through our survey that one thing they did not enjoy about having movement breaks scheduled during their classes was that the professor would speed, or skip a part of the lecture following the break, which can often be stressful for the students because they then feel as though they need to catch up, or won't have enough time to cover needed information. This could lead to an increase in stress and a decrease in the quality of a student's mood and mindset, which is the opposite intention of a movement break. Likewise, several participants mentioned the intrusiveness and time concerns relating to movement breaks in the classroom. To increase the enjoyment of movement breaks in the classrooms and address the concerns of UBC undergraduate students, Move UBC should work with professors to make sure movement breaks are consistent, planned, and scheduled as a part of the lecture throughout the semester. Furthermore, we recommend that movement breaks should

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occur approximately halfway through the length of a class or lecture. This ensures a break up of sedentary behaviour and more likely engagement in the movement break by students. Having movement breaks aligned with the midpoint of the class provides an opportunity to let the brain's attention to lecture material also break, and possibly rejuvenate attention to the lecture material after the movement break has been completed. Lastly, having a set time for these movement breaks creates routine and frequency for students. Starting to create a routine in breaking up sedentary activity provides students with the opportunity to do so regularly and possibly make room for a behaviour change towards less sedentary activities.

- 3) Work with UBC faculty and staff to find creative ways to incorporate physical activity in the learning material.

Some ways Move UBC can increase physical activity in the classroom include encouraging UBC faculty and staff to find creative ways to incorporate it into their lectures. For instance, this can include putting class material or attendance in front of the lecture hall so students have to walk to grab them. As there is minimal planning involved, putting class material or attendance in front of the lecture hall can be considered an immediate action that UBC faculty staff can initiate to increase physical activity. Further, although 100% of those who had not participated in a movement break before stated they perceived them to be beneficial to their learning, only 76% of those who had participated in a movement break found it beneficial to their learning (See Appendix D, Figure 3 & 4). Therefore, if possible, short periods of physical activity could perhaps be incorporated as a physical representation of learning material if it is relevant to the course. Smaller classes or seminar classes can organize to walk somewhere as a part of a learning activity or active assignment. For example, science classes (such as Biology or

UBC STUDENT'S PERSPECTIVES ON MOVEMENT BREAKS

Astronomy classes) could find ways to walk outside while learning material that's relevant to the Earth. Moreover, one participant said that “[for their] Biology class [they] had to go take regular walks in Pacific Spirit Regional Park to look at trees”, and suggested that more classes do the same to increase physical activity in the classroom. Another possible way of encouraging physical activity, perhaps not during the class period, could be a type of scavenger hunt. Based on lecture material covered in class, students are asked to submit a photo or finish a passage of writing from a landmark on campus. For example, Forestry students could be given the task to find specimens of plant life that grow on campus.

4) Educate UBC faculty, staff, and students on the benefits of movement breaks.

As our data suggest, those who had not engaged in a movement break before had a low mean of 3.86 for the likelihood to participate in a movement break (see Appendix D, Figure 1). Therefore, one recommendation we suggest to encourage more students to participate in a movement break is by introducing students to daily movement breaks by first sharing the benefits that they can provide in academics and their daily lives. UBC faculty and staff could learn about the benefits of movement breaks through workshops before the semester begins and then pass on the knowledge to their students about the importance of these breaks. When we asked our participants how movement breaks at UBC could be improved, one participant gave us feedback saying that “movement breaks could be improved by having students be educated on why they are having them so students are able to see the value in it”. Educating professors and students on the benefits associated with movement breaks could play a key role in encouraging students to participate.

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Appendix A
Consent Form**CLASS PROJECT: Health Promotion and Physical Activity (KIN 464)****Participant Consent Form****UBC Undergraduate Student's Perspectives of Movement Breaks in the Classroom****Group 16****Principal Investigator:**

Dr. Andrea Bundon (Assistant Professor, School of Kinesiology, Faculty of Education)

The purpose of the class project:

To gather knowledge and expertise from community members on the perspectives of UBC undergraduate students on movement breaks in the classroom.

Study Procedures:

With your permission, we are asking you to participate in a survey.

You may only complete the survey once.

With the information gathered, students will critically examine how different individuals understand or engage in health promoting activities or health promotion initiatives.

Project outcomes:

The information gathered will be part of a written report for the class project. The written report will be shared with campus partners involved with the project. Summaries of findings will also be posted on the following websites. *No personal information/information that could identify participants will be included in these reports or shared with campus partners.*

UBC SEEDS Program Library:

<https://sustain.ubc.ca/courses-degrees/alternative-credit-options/seeds-sustainability-program/seeds-sustainability-library>

Potential benefits of class project:

There are no explicit benefits to you by taking part in this class project. However, the interview will provide you with the opportunity to voice your opinion on your experiences with health promoting activities or initiatives in a broad sense and will provide the students with an opportunity to learn from your experiences.

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Confidentiality:

Maintaining the confidentiality of the participants involved in the research is paramount, and no names of participants will be collected.

At the completion of the course, all data (i.e. notes) and signed consent forms will be stored on a secure electronic drive by Dr. Bundon. All data and consent forms will be destroyed 1 year after completion of the course.

Risks:

The risks associated with participating in this research are minimal. There are no known physical, economic, or social risks associated with participation in this study. You should know that your participation is completely voluntary and you are free to **withdraw from the study** and there will not be negative impacts related to your withdrawal. If you withdraw from the study, all of the information you have shared up until that point will be destroyed.

Contact for information about the study:

If you have any questions about this class project, you can contact Andrea Bundon by phone at 604-822-9168 or by email at andrea.bundon@ubc.ca

Research ethics complaints:

If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or e-mail RSIL@ors.ubc.ca . or call toll free 1-877-822-8598.

Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time.

Consent:

Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time.

- **I consent to participate in this study**
- **I do not consent to participate in this study.**

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Appendix B
Survey Questions

1. Which faculty are you in?
 - Applied Sciences
 - Arts
 - Dentistry
 - Education
 - Forestry
 - Medicine
 - Pharmaceutical Sciences
 - Sciences
 - Other _____ (please specify)

2. Are you currently enrolled as an undergraduate student at UBC?
 - Yes
 - No

Please answer the following questions that apply to YOU and YOUR experience with movement breaks in the classroom setting.

3. Have you heard of Move UBC?
 - Yes
 - No

4. Are you aware of what a movement break is?
 - Yes
 - No

Movement break can be defined as designated times within a class period that students are led through a bout of physical activity, getting students moving while also breaking up sedentary time spent during a lesson.

MoveUBC is a university-wide annual initiative to increase physical activity and reduce the time students, staff, faculty and the UBC community spend being inactive

5. Whether it was led by another student, professor, teaching assistant, MoveUBC, or a self-guided movement break, have you previously participated in a movement break during class time?
 - Yes

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- o No

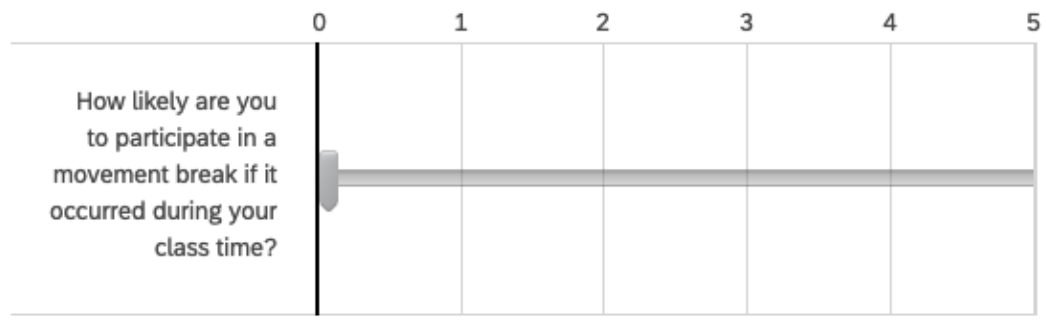
6. What subject/class was the movement break a part of? _____

7. Which of the following movement breaks would you most likely be inclined to participate in?

- o Voluntary stretching movement breaks (slow, mobility exercises)
- o Voluntary active movement breaks (consisting of quick cardiovascular exercises)
- o Self-guided movement breaks (allowing you to choose what to do with the short period of time given. This could include walking around the building, getting a drink of water, your own stretches)

8.

0 stands for extremely unlikely, and 5 stands for extremely likely

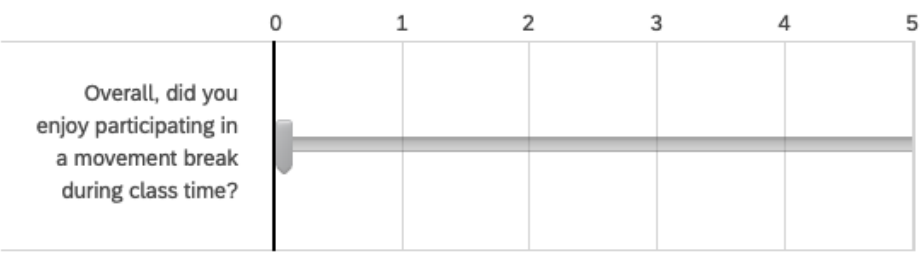


9. What is one thing that you enjoyed about the movement break? _____

10. What is one thing you didn't enjoy about the movement break? _____

11.

0 stands for didn't enjoy it at all, and 5 stands for enjoyed it a lot



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12.

Although you have not participated in a movement break before during class time,

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Do you think movement breaks would be beneficial to your learning?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you think movement breaks would improve your mood?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Following movement breaks, do you think your ability to focus on lecture material would improve?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13.

Since you have participated in a movement break during class time,

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Do you think movement breaks have been beneficial to your learning?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you think movement breaks have improved your mood?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Following movement breaks, do you think your ability to focus on lecture material had improved?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. What is one recommendation you may have on how movement breaks can be improved during class time at UBC? _____

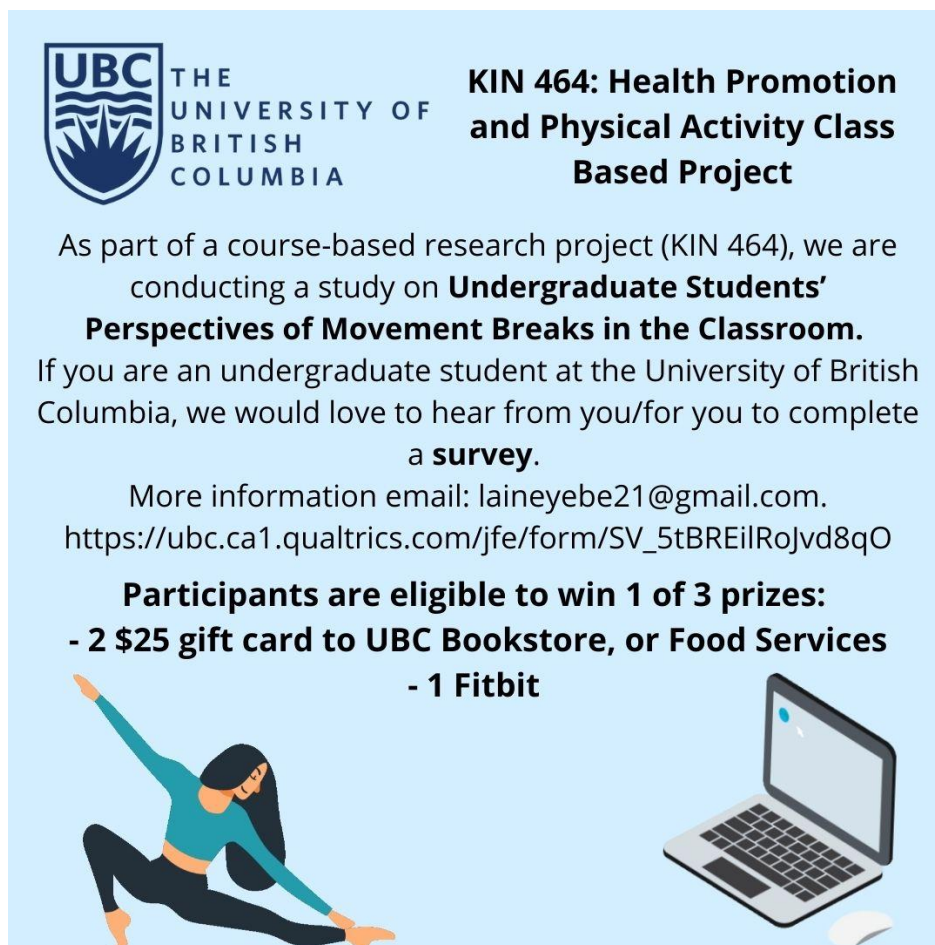
15. What is one other way physical activity can be incorporated into the classroom (including in 'virtual' classrooms)? _____

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Appendix C
Study Recruitment Poster

Link to Our Information Sheet:

<https://kin.educ.ubc.ca/ubc-undergraduate-students-perspectives-on-movement-breaks-in-the-classroom/>



UBC THE UNIVERSITY OF BRITISH COLUMBIA

KIN 464: Health Promotion and Physical Activity Class Based Project

As part of a course-based research project (KIN 464), we are conducting a study on **Undergraduate Students' Perspectives of Movement Breaks in the Classroom.**

If you are an undergraduate student at the University of British Columbia, we would love to hear from you/for you to complete a **survey.**

More information email: laineyebe21@gmail.com.
https://ubc.ca1.qualtrics.com/jfe/form/SV_5tBREilRoJvd8qO

Participants are eligible to win 1 of 3 prizes:

- 2 \$25 gift card to UBC Bookstore, or Food Services
- 1 Fitbit

The poster also features an illustration of a woman in a teal top and black leggings performing a yoga pose, and a laptop with a mouse.

Our Instagram Caption:

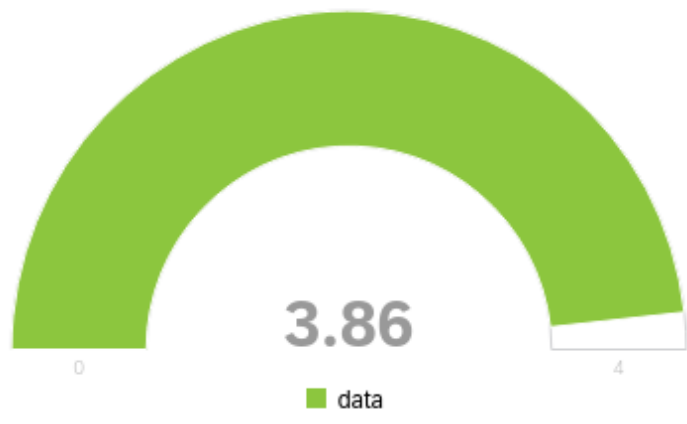
If you are an undergraduate UBC student, we would love to speak with you!

As part of a course-based research project (KIN 464), we are conducting a study on Undergraduate Student's Perspectives of Movement Breaks in the Classroom. If you are an undergraduate student at the University of British Columbia, we would love for you to complete a survey. More information email laineyebe21@gmail.com.
https://ubc.ca1.qualtrics.com/jfe/form/SV_5tBREilRoJvd8qO

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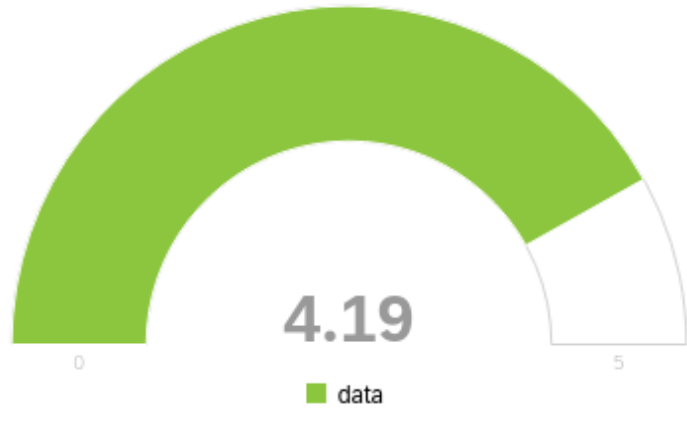
Appendix D
Figures

Figure 1:
Title: Likelihood of Participation in Those Who Have Not Participated in A Movement Break before in Their Classroom



Note: This figure illustrates the overall mean of the likelihood of participation for those who have not participated in a movement break in their classroom.

Figure 2:
Title: Level of Enjoyment in Those Who Have Participated in A Movement Break in Their Classroom

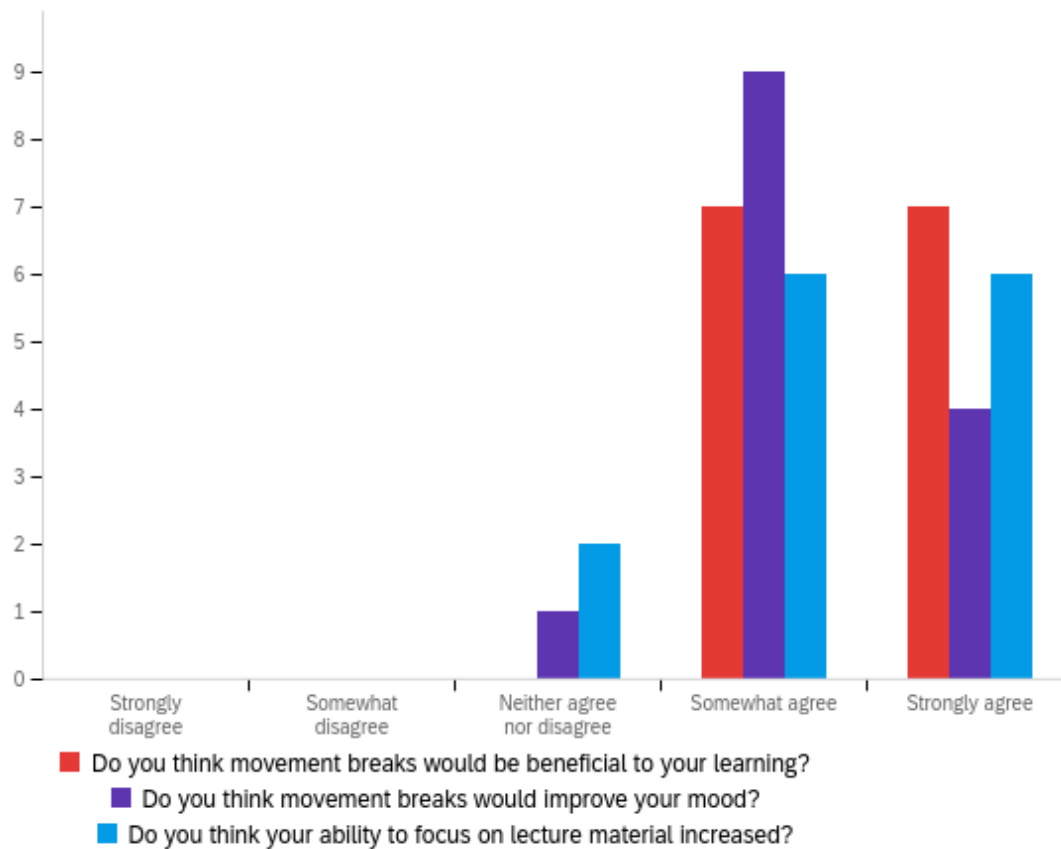


Note: This figure illustrates the overall mean of the level of enjoyment for those who have participated in a movement break in their classroom.

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Figure 3:

Title: Those Who Have Not Participated and Their Perceptions on the Effects of Movement Breaks on Learning Benefits, Mood and Focus

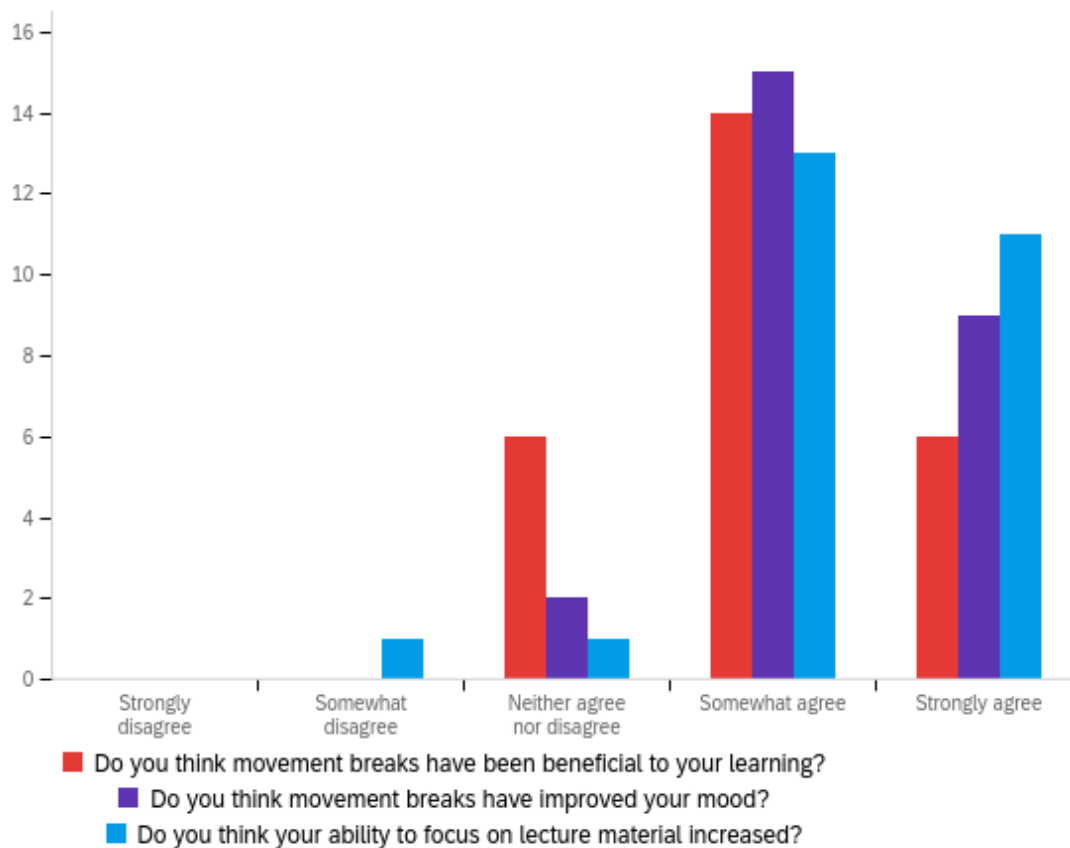


Note: The figure illustrates whether UBC undergraduate students who have not participated in a movement break before believe movement breaks can be beneficial to their learning, mood, or help them focus on lecture material.

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Figure 4:

Title: Those Who Have Participated and Their Perceptions on the Effects of Movement on Learning Benefits, Mood and Focus

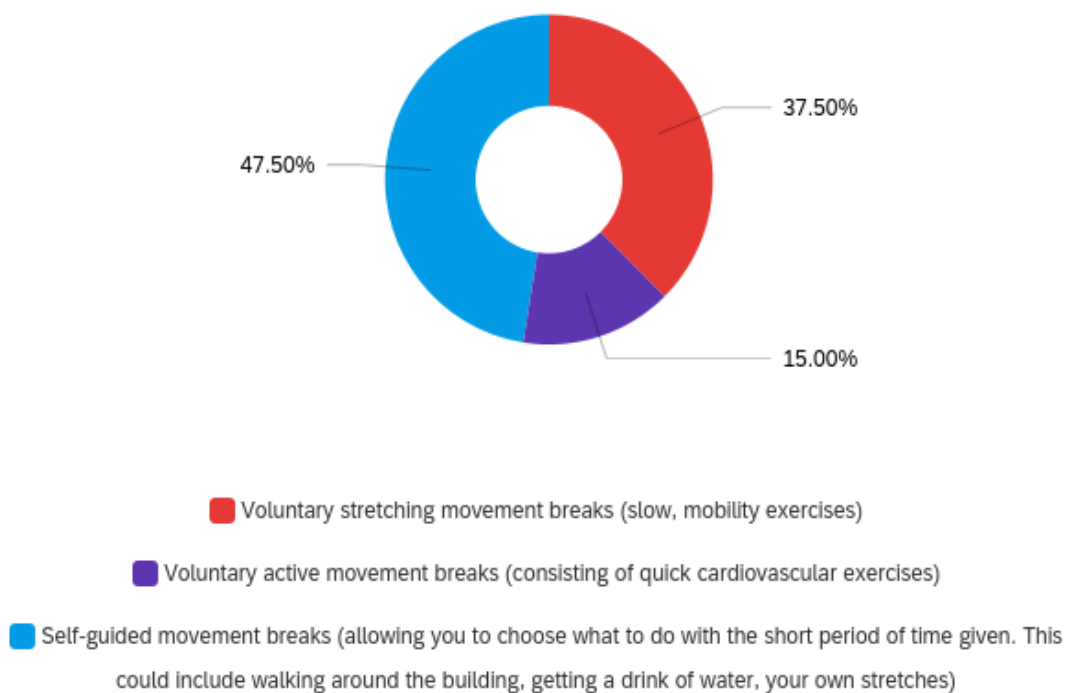


Note: The figure illustrates whether UBC undergraduate students who had participated in a movement break believe movement breaks have been beneficial to their learning, mood, or their ability to focus on lecture material.

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Figure 5:

Title: Type of Movement Break Preferred by UBC Undergraduate Students



Note: The figure illustrates the participant's preference for which movement break they prefer to engage in.