Improving the well-being of university students through in-class "Fit-Breaks": A two-part investigation

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INTRODUCTION

- University students spend most of their time being sedentary in academic environments.[1]
- Too much time spent in sedentary behaviour (SB) is associated with poor health, including elevated cardiometabolic risk markers, type 2 diabetes, and premature mortality, even after controlling for the influence of moderate-to-vigorous physical activity (MVPA)[2-4] and has been linked to poor mental health.[5]
- Physical activity (PA) can help break up long periods of SB, and is becoming an emerging classroom tool to promote student engagement and well-being.[9-11]
- PA can have a positive impact cognitive functioning and mood.[6,7] National guidelines indicate that PA should be accrued in bouts of at least 10-minutes for potential health benefits.[8]
- For the present study, "Fit-Breaks" were incorporated into first year Computer Science lectures.
- Fit-Breaks are 10-minute bouts of easy-to-follow exercises and stretches that are designed to be safe and appropriate for students of all fitness levels within a resource- and space-limiting environment.

PURPOSE

1) To examine the effects of Fit-Breaks on well-being among University students
2) To examine the specific dimensions of well-being that may be most impacted by Fit-Breaks

METHODS

PARTICIPANTS

- First-year Computer Science students at the University of Toronto
- **Year 1:** *N* = 162; 20.9% female, 79.1% male
- **Year 2:** *N* = 379; 21.9% female, 77.0% male

DESIGN

- Lecture sections were randomly assigned to include either student-led Fit-Breaks or an instrumental music break (comparison) during their 10-minute lecture break for the duration of the term.
- Self-report data were collected 12 weeks apart, at start and end of the academic semester.
- Students were provided the opportunity to earn a bonus 2% towards their final grade by completing the surveys.

MEASURES

Global Well-Being – measured in Year 1
- Satisfaction with Life Scale (SWLS)[12]
- 5 items on a 7-point Likert scale, 1 = strongly disagree to 7 = strongly agree
- A high score indicates high satisfaction with life

Dimensional Well-Being – measured in Year 2
- Ryff's Psychological Well-being Scale (PWBS)[13]
- 42 items total on a 6-point Likert scale, 1 = strongly disagree to 6 = strongly agree
- 7 items for each of the 6 dimensions of well-being: Autonomy, Environmental Mastery, Personal Growth, Positive Relations, Purpose in Life, Self-acceptance
- A high score indicates positive well-being

ANALYSIS

- A repeated measures ANOVA was used to examine differences in SWLS and dimensions of PWBS between groups at the two time points.

RESULTS

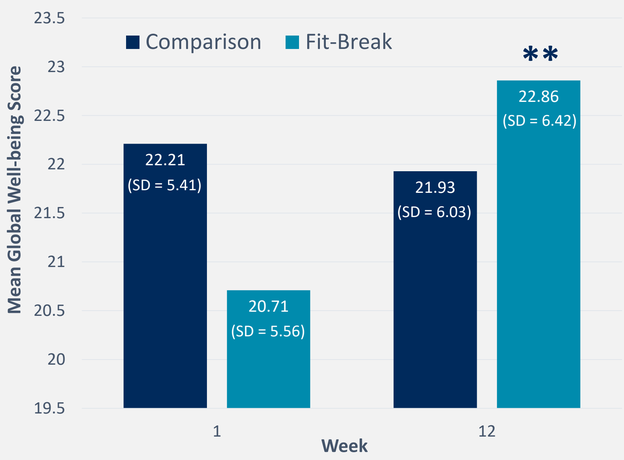

Figure 1. Mean global well-being scores measured via Satisfaction with Life Scale (SWLS) for Fit-Break and Comparison Groups at Pre- and Post-Assessment time points, 12 weeks apart. ** $p < .001$ (2-tailed)

Year 1 – Global Well-being

A repeated-measures ANOVA showed no significant effect of time ($F(1,160) = 3.35$, $p = 0.069$) or group ($F(1,160) = 0.094$, $p = 0.76$). There was a significant interaction effect for break structure over time. Students in the Fit-Break classes reported significantly higher SWLS scores than students who listened to music from week 1 to week 12 (Wilks' Lambda = 0.97, $F(1,160) = 5.66$, $p = 0.019$), although the effect size is small ($\eta_p^2 = 0.034$).

** Post-hoc testing revealed a significant difference between SWLS scores for the Fit-Break group from week 1 to week 12 ($t(118) = 3.89$, $p < .001$).

Table 1. Descriptive Statistics for Dimensions of Well-being in Year 2

	Comparison Mean (SD)		Fit-Break Mean (SD)	
Dimension of Well-being	Pre	Post	Pre	Post
Autonomy	**22.77 (4.12)**	**25.73 (4.40)**	**22.04 (4.43)**	**26.00 (5.05)**
Environmental Mastery	26.25 (3.57)	25.17 (3.57)	25.66 (3.83)	25.11 (4.66)
Personal Growth	**29.32 (4.47)**	**27.16 (5.21)**	**29.49 (4.65)**	**28.45 (5.76)**
Positive Relations	27.91 (5.15)	26.76 (4.91)	28.27 (4.61)	27.64 (5.65)
Purpose in Life	28.69 (5.05)	26.76 (5.15)	29.25 (4.94)	27.77 (5.87)
Self Acceptance	26.49 (5.69)	25.24 (5.15)	26.61 (5.59)	25.79 (6.31)

Year 2 – Dimensions of Well-being

A repeated-measures ANOVA showed a significant time effect ($p < .001$) , no group effect, and significant interaction effects across groups and PWBS over time for autonomy ($F(1,378) = 5.34$, $p = .019$) and personal growth ($F(1,378) = 5.37$, $p = .021$).

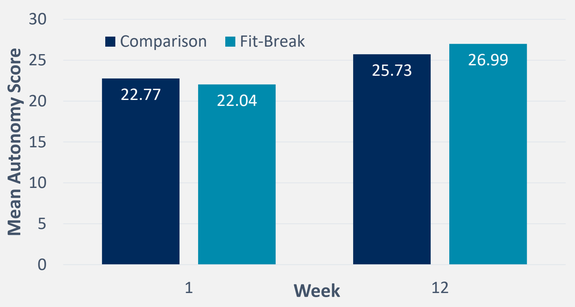

Figure 2. Mean autonomy scores measured via PWBS for Fit-Break and Comparison Groups at Pre- and Post-Assessment time points, 12 weeks apart.

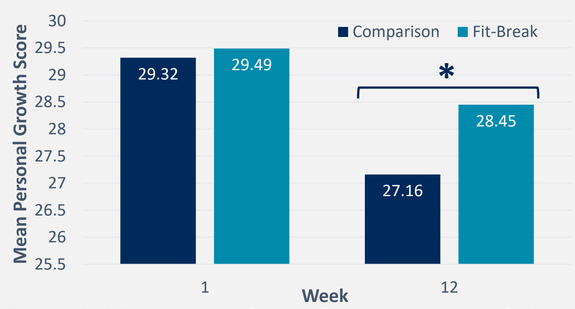

Figure 3. Mean personal growth scores measured via PWBS for Fit-Break and Comparison Groups at Pre- and Post-Assessment time points, 12 weeks apart.

* Post hoc testing revealed a significant difference in personal growth score between Fit-Break and comparison groups at week 12 ($t(118) = 2.31$, $p < .05$).

DISCUSSION

- These findings suggest that even brief, weekly 10-minute bursts of PA can influence well-being, with strongest effects for autonomy and personal growth.
- Replicating these findings with students from other academic disciplines, and in other post-secondary institutions, would lend support to the potential impact.
- As both the music-listening comparison and experimental PA group experienced changes in autonomy and personal growth, more work is needed to determine the mechanism of change and explore potential confounding factors, such as seasonal changes in stress and well-being
- Instructors intend lecture breaks to be an opportunity for students to relax and reset their attention. However, students often remain seated during these breaks, using a laptop or mobile device, which may have unintended consequences.[14] Structuring lecture breaks in a more meaningful way, to include PA, may be a more effective strategy to achieve this goal.

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We would like to thank Laurie Wright and Dr. Bruce Kidd for their support of this project. In addition, we would like to acknowledge the contribution of our growing team of UTSC student volunteers for their enthusiasm and commitment to the program. Finally, thank you to the students in CSCA08 for taking part in this research as participants.

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