An Examination of Undergraduate Student Sedentary Behavior by Activity Level

Chelsea Larsen, MPH, Sang-Eun Byun, PhD, Brie Turner-McGrievy, PhD and Delia West, PhD
University of South Carolina, TecHealth Center

Background

There is emerging evidence that sedentary behavior can have detrimental effects on health, independent of an individual's activity level.[1] This means that someone can be active and still be at an increased risk based on their sedentary time.

College students represent a population at risk for engaging in high levels of sedentary behavior since adolescent physical activity levels tend to decline as individuals become college students.[2]

However, since sedentary behavior and physical activity are not mutually exclusive,[3] it is unknown whether the sedentary behavior differs between students of varying activity levels. Determining how sedentary time covaries with physical activity can help inform behavioral interventions for this vulnerable population.

Purpose

To examine whether there are significant differences in daily sedentary time between low/moderate and high active undergraduate students.

Hypothesis: High active students will be less sedentary than low/moderate active students.

Methods

- **Participants:** Undergraduate students at the University of South Carolina completed an online survey that assessed sociodemographics and lifestyle behaviors
- **Variables of Interest**
  - Physical activity: 7-item International Physical Activity Questionnaire
    - Students were classified as "high" or "low/moderate" based on frequency and duration of vigorous activity, moderate activity, and walking
  - Sedentary Behavior: Sedentary Behavior Questionnaire adapted for college students - weighted daily sedentary minutes [(weekday*5)+(weekend*2)/7]
- **Statistical Analyses**
  - Non-parametric analyses to determine if high active students differed significantly from low/moderate active students

Results

Table 1. Demographics by IPAQ Category

	Low/Moderate Active N=126	High Active N=146	P-value
% Female	83%	76%	NS
% White	81%	89%	NS
Mean age	20.1 ± 1.6 years	19.9 ± 1.3 years	NS
Mean BMI	22.9 ± 3.7 kg/m^2	22.9 ± 3.8 kg/m^2	NS
Met mins/week	547.7 [IQR: 816.9]	2,531.7 [IQR: 1,901]	**<0.0001**
Sedentary mins/day	769.3 [IQR: 507.9]	648.2 [IQR: 497.1]	**0.02**

NS=Non-significant

Results Continued

Table 2. Weighted median sedentary time and proportion of time college students spend sedentary in different activities

"How much time do you spend sitting or lying while doing the following activities?"	Median Daily Sedentary Minutes (median [IQR])	Percent[a] of Total Sedentary Time (% ± SD)
Watching TV	120.0 [120.0]	16.9 ± 9.4
Playing games	42.9 [93.2]	8.4 ± 8.3
Listening to music	19.3 [60.0]	5.0 ± 5.5
Talking or texting on phone	60.0 [90.0]	10.4 ± 7.3
On computer at work	30.0 [120.0]	8.4 ± 9.4
On computer for leisure	60.0 [79.3]	9.5 ± 6.4
In class or doing school work	120.0 [120.0]	19.1 ± 12.0
Reading a book or magazine	0.0 [25.7]	2.6 ± 4.3
Playing a musical instrument	0.0 [0]	0.7 ± 2.3
Artwork, crafts, or other hobbies	0.0 [15.0]	1.4 ± 2.6
In a car, bus, or train	30.0 [40.7]	6.2 ± 4.6
Socializing with friends	77.1 [98.6]	12.7 ± 8.0
Total	706.1 [496.1]	100

a. Percent of sedentary time= [(Time in activity on weekday *5) + (Time in activity on weekend*2)/7] / [(Total weekday sedentary time * 5) + (Total weekend day sedentary time * 2)] / 7

Conclusions

- Full sample had a median self-reported sedentary time of 11.8 hours/day
- The highest proportion of sedentary time was spent watching TV, in school-based activities and socializing with friends
- As hypothesized, high active students were significantly less sedentary with a median sedentary time of 10.8 hours as compared to low/moderate active students who report 12.8 hours of sedentary time
- However, high active students still engaged in substantial amounts of sedentary time each day (>11 hours)

Future Directions

- Since most college students, even those who engage in high levels of physical activity, spend excessive time engaged in sedentary behaviors, health promotion interventions which target sedentary behavior are recommended for this population

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2. Keating XD, Guan J, Pinero JC, Bridges DM. A meta-analysis of college students' physical activity behaviors. *J Am Coll Health.* 2005;54(2):116-125.10.3200/JACH.54.2.116-126
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