

## Using Technology and a Student-Centered Approach to Promote a More Active Culture among College Students

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The transition to college is an exciting time for most students and full of changes. Students often live independently for the first time and are required to adjust to new demands and environments. These adjustments result in the development of new habits and lifestyles, most of which are not ideal for health. In addition to developing a poor quality diet, binge drinking, and engaging in unsafe sex, the majority of this population is physically inactive and spends high amounts of time engaged in sedentary behaviors. Sedentary behavior has been detrimentally linked with health outcomes, independent of participation of moderate-to-vigorous intensity physical activity and unfortunately, the college environment promotes sedentary behavior due to the extensive time spent sitting in required classes, working on computers, and studying for hours at a time. Although physical inactivity and excess sedentary behavior are identified as issues among college students, few scalable interventions have been developed that effectively increase physical activity and decrease sedentary behavior in this population. **A major challenge is identifying ways to create a more active culture among incoming college students and developing healthy activity patterns that not only are maintained throughout college, but are continued long after graduation.** Increasing physical activity levels and decreasing sedentary time throughout the college years would help to instill healthy patterns and habits, ultimately helping to preserve health and foster wellbeing.

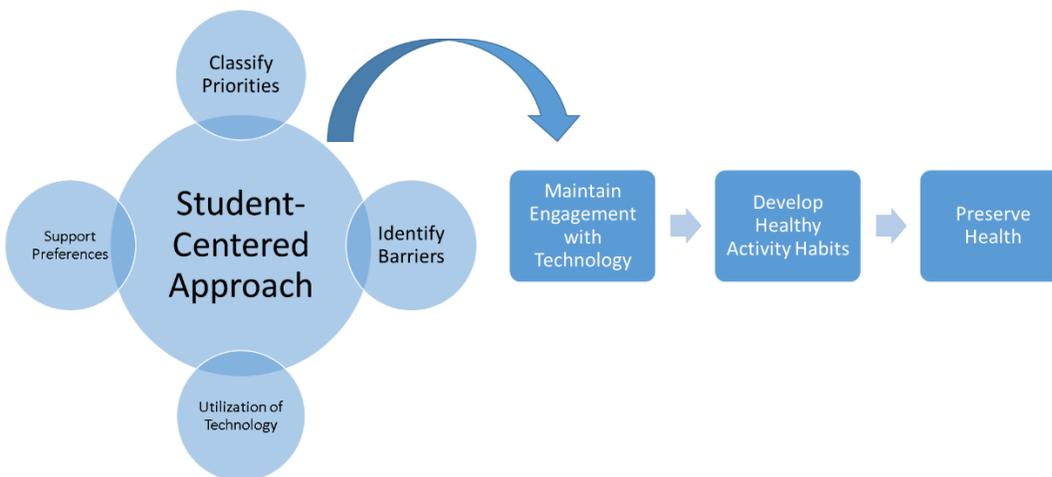
Physical activity and sedentary behaviors are complex behaviors influenced by a number of factors across various levels. For example, environmental, social, and individual factors may be influencing college students' momentary decisions to engage in physical activity or sedentary behaviors. In order to develop the most comprehensive interventions to modify sedentary and physical activity behaviors in this population, a just-in-time multi-level approach is needed. Technology may provide an opportunity to effectively intervene on multiple levels simultaneously to promote physical activity and interrupt sedentary behavior. In particular, mobile phones and wearables, which are ever-present in this population, provide a unique way to not only monitor activity levels, but also intervene in real-time based on objectively-measured and context specific sensor data obtained from the device. For instance, using the internal accelerometer of the phone, prolonged bouts of sedentary behavior can be detected. Using the GPS, the device could recommend nearby opportunities to stand up (i.e., standing workstations) via text messages or push notifications. Additionally, the mobile phone could identify peers or buddies that are nearby and suggest a strategy to meet up and increase activity (i.e., walking study session). Overall, there are numerous forms of technology, sensors, and social networking capabilities that have the potential to influence college students' behaviors and improve health.

One of the challenges with using mobile phones, wearables, and other forms of technology to intervene on behaviors is many users lose interest or become disengaged from the devices. For example, maintaining engagement with a health-related smartphone application after the initial download is often challenging. Additionally, the use of mobile phones in college students

has been linked with lower levels of physical activity and more sedentary time. **It is unclear on the how to best develop an engaging tool that college students will use regularly, and can effectively increase participation in activity and discourage sedentary behavior.**

One approach that may help to enhance engagement with a mobile device or other health-promoting technology, is to work alongside college students. **Using a student-centered approach is imperative to obtain a better understanding of the students' priorities, barriers and preferences for activity, and overall use of technology.** Fully incorporating the college students' perspective within the tool and system could help to improve the likelihood of participation long-term. Developing a comprehensive, multi-level system using a student-centered approach has the potential to improve engagement with the technology, resulting in the adoption of healthy activity patterns across campus, and preservation of college student health.

Figure 1: Student-Centered Approach to Promote a More Active Culture



### Proposer Bio:

Christine Pellegrini is a Research Assistant Professor in the Department of Preventive Medicine at Northwestern University. She is an exercise physiologist with a background in psychology and disability. Her research interests include the development and implementation of technology-supported behavioral interventions targeting diet, physical activity, sedentary behavior, and weight loss. She has been funded to develop a smartphone application to interrupt prolonged bouts of sedentary time in adults with diabetes. Additionally, she is currently funded by AHRQ to use patient and stakeholder input to guide the development of a patient-centered behavioral weight loss program for patients undergoing total knee replacement.