Stairwell: Increasing Activity Among Nursing Students and Faculty

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Objective: To promote increased activity as measured by stair use frequency among nursing students, faculty and staff using a prospective quasi-experimental pre-post-test design.

Background: The American Nurses Association declared 2017 the Year of the Healthy Nurse and encouraged increased activity because nurses and nursing students have an average Body Mass Index (BMI) of 27.6 indicating overweight, and less than half participate in recommended quantity and time in exercise. Data support aerobic exercise increases cognitive function yet, nursing lectures range from 2-10 hours of sitting a day; staff and faculty spend 6-10 hours sitting at the computer, regular stair climbing burns more calories per minute than jogging. Thus, stair use could improve health and cognition among students, staff, and faculty.

Methods: Data were collected from 6 floors of the school over 12 weeks (baseline 4 weeks; post intervention 8 weeks) using 6 people counter directional (PCD) sensors placed on multiple floors of the two stairwells with data recorded daily by research staff. Intervention included stairwell sanitation, motivational signage, and colorful door wraps. Post intervention data were collected with PCD sensors and an anonymous survey to students, faculty and staff. Data were analyzed with t tests by each day of week and descriptive statistics for survey data.

Results: Mean number of people using stairs up increased from baseline to intervention on Wednesdays and Thursdays; from 53 to 61 people and 54 to 72 people, respectively. Mean number of people using stairs down increased from baseline to intervention on Wednesdays and Thursdays; from 87 to 103 people and 60 to 83 people, respectively. Survey participants (n=133; 19% response rate) were 86% female, 81% students, 13% staff and 6% faculty, with 33% white and age 20-24 years. “Always use” of stairs increased from 29% to 37%, “stair use for exercise” increased from 61% to 78%, 59% agreed intervention increased their stair use and 49% reported using the stairs for multiple floors. Faculty survey respondents did not report increased stair use following intervention.

Conclusion: Nursing staff and student participants reported increased use of stairs as exercise following intervention which reflects the people count data, indicating interventions increased stairwell usage, although this increase was not significant. A cleaner, more inviting stairwell promotes use and thus physical activity among nursing students and staff. Faculty reported no increase in stair use suggesting limited activity levels and room for improvement. Research funded in part by Healthy Campus Initiative, UCLA.
Title:
Stairwell: Increasing Activity Among Nursing Students and Faculty

Keywords:
nurses and exercise, nursing students and activity and stairwell use

References:


Abstract Summary:
The ANA declared 2017 the Year of the Healthy Nurse because nurses average Body Mass Index is 27.6 (overweight), and less than half participate in recommended exercise. Stair climbing burns more calories per minute than jogging. Stair use could improve health and increase activity among students, staff, and faculty.

Content Outline:
STAIRWELL: INCREASING ACTIVITY AMONG NURSING STUDENTS AND FACULTY

Keywords: nurses and exercise, stairwell use, nursing students and activity

Introduction:

A. The American Nurses Association declared 2017 the Year of the Healthy Nurse and encouraged increased activity because nurses and nursing students have an average Body Mass Index (BMI) of 27.6 indicating overweight, and less than half participate in recommended quantity and time in exercise.

B. Data support aerobic exercise increases cognitive function yet, nursing lectures range from 2-10 hours of sitting a day; staff and faculty spend 6-10 hours sitting at the computer.

C. Regular stair climbing burns more calories per minute than jogging. Thus, stair use could improve health and cognition among students, staff, and faculty.

Body:
Main Point #1: To promote increased activity as measured by stair use frequency among nursing students, faculty, and staff using a prospective pre-experimental pre-post-test design.

- Uncontrolled before-and-after study examining usage of stairwells in the UCLA School of Nursing building between February 2018 and June 2018
- Intervention included motivational point of decision signage, sanitation of stairwell, and colorful door wraps
- Data was collected using six directional people counter devices (PCDs) and an anonymous online post-intervention survey to students, staff, and faculty. Baseline data was collected for 2 weeks and follow-up data for 10 weeks
- Data were analyzed with ANOVA and T-tests analysis by each week day and descriptive statistics for survey data.

Main Point #2: Results of the Stair Counter Data

- Mean number of people using stairs up increased from baseline to intervention on Wednesdays and Thursdays, from 53 to 61 people and 54 to 72 people, respectively. Mean number of people using stairs down increased from baseline to intervention on Wednesdays and Thursdays, from 87 to 103 people and 60 to 83 people, respectively.
- When data was standardized for number of people in the building, the number of people going up and down the stairs on Wednesday significantly increased (both p≤0.01). Using standardized data, Monday, Tuesday, Thursday and Friday were not significant.
- Data were analyzed for stairwell use by day of the week and by examining the first two weeks post-intervention in comparison with baseline
- There was an increase in standardized stairwell usage from pre-intervention (wk 2) to post-intervention (wks 3 & 4) on:
  - Tuesdays significantly going up (M=0.13 v. 0.3, p=0.05) and going down (M=0.18 v. 0.39, p=0.02).
  - Wednesdays going up (M=0.32 v. 0.57, p=0.10) and significantly going down (M=0.38 v. 0.95, p=0.003).
  - Thursday going up (M=0.13 v. 0.28, p=0.8) and going down (M=0.17 v. 0.35, p=0.8).
- As weeks progressed post-intervention there was no difference compared to baseline stairwell use

Main Point #3: Results of the Survey Data

- Survey participants (n=133; 19% response rate) were 86% female, 81% students, 13% staff and 6% faculty, with 33% white and age 20-24 years. “Always use” of stairs increased from 29% to 37%, “stair use for exercise” increased from 61% to 78%, 59% agreed intervention increased their stair use and 49% reported using the stairs for multiple floors. Faculty survey respondents did not report increased stair use following intervention.
- Self-reported stairwell usage differed by age group with 50+ age group reporting the greatest increase in stair use post-intervention
- The 40-49 year-olds least improvement in self reported stair use.
- No difference by gender or ethnicity/racial groups in self-reported stair use
- There were significant in self-reported stair use by student group
- Favorite point of decision signage also different by age group. Those under 20 years preferred, “Push yourself not the button” and “Taking the stairs promote fitness and conserves electricity” In contrast, participate over the age 40, preferred “Skip the gym, take the stairs.”

Main Point # 4: Discussion
• While survey data indicated that faculty, staff, and students self-reported increased stairwell use, PCD data did not support this.
• On Wednesdays, APRNs routinely saw increased stairwell use after intervention, suggesting practicing nurses may understand the importance of regular physical activity.
• The initial two weeks post-intervention saw an uptick in stair use that quickly returned to baseline levels, indicating the intervention needed to be more aggressive and prolonged in order for behavior change to be sustained.
• The slogan “Skip the Gym: Take the Stairs” was most motivational for those who currently hold an RN license (APRN and PhD students). This finding should promote further research into differing motivational and contextual dynamics for pre- and post-licensure individuals.

Conclusion: Nursing staff and student participants reported increased use of stairs as exercise following intervention which reflects the people count data, indicating interventions increased stairwell usage, although this increase was not significant. A cleaner, more inviting stairwell promotes use and thus physical activity among nursing students and staff. Faculty reported no increase in stair use suggesting limited activity levels and room for improvement. Research funded in part by Healthy Campus Initiative, UCLA.

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Professional Experience: 2018 - present: Undergraduate student researcher and survey developer for the Healthy Campus Initiative Study at University of California, Los Angeles 2018- Developer of point of decision motivational signage for UCLA School of Nursing StairWell Initiative

Author Summary: Constance Coelho will be completing the Bachelors of Science in Nursing Program at the University of California, Los Angeles this upcoming June. Constance is looking forward to using her love for exercise and wellness to promote the health of children as a future pediatric nurse. She is a member in the Nursing Running Club and participates in Wellness in Nursing activities on campus. On this project, she worked as a data collector and survey developer.

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Professional Experience: 2018 - Graduate student researcher for the Healthy Campus Initiative Study at UCLA. 2014 - Undergraduate student researcher for the Human Gene Smart Study at Victoria University in Melbourne, Australia. 2013 - Undergraduate researcher for FMS injury screening/prevention study Cal State Fullerton.

Author Summary: Lukas Smith is currently in his final year of the MECN Program at the UCLA. He worked as a lead for the data collection, data standardization and study interventions teams on this project. Raised in San Diego, Lukas is passionate about exercise, nutrition and mental health to
encourage the overall well-being of communities. He has worked in exercise training, coaching and physical therapy will infuse his nursing and research careers with these components of health.

Third Author
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Author Summary: Robin Mertens is an entry-level Master's in Nursing student at the University of California, Los Angeles. With a prior Bachelor of Science degree in Kinesiology, health promotion has always been her passion, and she looks forward to continuing to apply this knowledge and generate research in the field of nursing.

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Professional Experience: 2017-present- Student Caregiver, UCLA 2016-present- Student Researcher, UCLA 2016-2018- UCLA Medical Center Nursing Volunteer and education team leader, Ronald Reagan UCLA 2013-present- Fido's Surgeon Veterinary Assistant, San Diego

Author Summary: Dahriel Aron is a student nurse with an interest in both research and bedside care. She has been involved with research at UCLA on obstructive sleep apnea, Alzheimer's disease, and the promotion of physical activity amongst nursing students. On top of her clinical rotations, she has also spent an additional 300 hours volunteering at UCLA medical center and serving in a leadership position for other nursing volunteers to follow.

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Author Summary: Mitchell Stern is an entry-level Master's in Nursing student at the University of California, Los Angeles (UCLA). Prior to beginning his program at UCLA, he worked as a lead clinical research coordinator for several studies on the efficacy and safety of drugs for the treatment of Alzheimer's disease and diabetic peripheral neuropathy. As a future nurse, he hopes to bridge the gap between medical research and bedside care to improve patients' health.
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**Professional Experience:** 2017-Present: UCLA undergraduate research assistant for the Walnut study
2018-present: Student researcher for UC Healthy campus initiative at UCLA
2016-2017: Volunteer at Cedars-Sinai Medical Center

**Author Summary:** Geng-Wei “Jay” Lee is an undergraduate nursing student at the University of California, Los Angeles. He is currently the head research assistant for a study examining the effects of walnuts on semen parameters. In addition to research, he has volunteered at Cedars-Sinai Medical center and has been a member of the UCLA triathlon team since 2015.

Eighth Author
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**Professional Experience:** I have been a professor of nursing and medicine for 20 years, teaching and mentoring nursing students and geriatric residents. My research is focused on use of technology in nursing homes and efforts to better detect and prevent pressure ulcers and treat chronic wounds. I developed the project and guided and mentored the student research team.

**Author Summary:** Dr. Bates-Jensen is a professor of nursing and medicine at UCLA. She is the author of "Wound Care a Collaborative Practice manual", developer of the Bates-Jensen Wound Assessment Tool and co-inventor of the SEM Scanner a device to detect pressure ulcers. Her interests include increasing activity levels among nurses and nursing students and she founded "Dr. BBJ’s Running Group" which has been active for the last 8 years at the Nursing School.

Ninth Author
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Author Summary: Diana O'Toole will be completing the Bachelors of Science in Nursing Program at the University of California, Los Angeles in June 2019. She is looking forward to her future in the nursing profession and hopes to promote health and wellness with her passion for running and exercise. On this project, she worked as a data collector and survey developer.