Activity levels for small samples of college students on Pohnpei in the Federated States of Micronesia as measured by pedometer step counts

The intent of this study was to examine levels of activity among Pacific island community college students as measured by pedometers. The study also looked for relationships between activity levels and gender, activity levels and body fat percentage, and activity levels versus age.

A convenience sample of college students was studied on Pohnpei to determine activity levels as measured by pedometer step counts. The sample consisted of students in a statistics course at the College of Micronesia-FSM. The students came from all four of the states of the Federated States of Micronesia.

All students in the course had the opportunity to participate in the study, and all received pedometers. Body fat data was not available for every student, and a few students never reported step count data. These students were not considered in the study below. There were no apparent physiological commonalities among the students who did not participate, their absence should not significantly alter nor skew the following results.

Data for the students in the college statistics course included gender, age, height, weight, and percent body fat. The percent body fat was measured using a Tanita® body composition scale. Complete data was available for 31 students. These 31 students reported daily step counts as measured by World Health Organization pedometers provided by FSM Department of Health. Some students provided as few as four days worth of pedometer data, other students provided over twenty days worth of pedometer data. Overall 539 daily counts were reported by these 31 students.

The mean for these 31 students was 5827 steps per day with a standard deviation of 3869 steps per day.

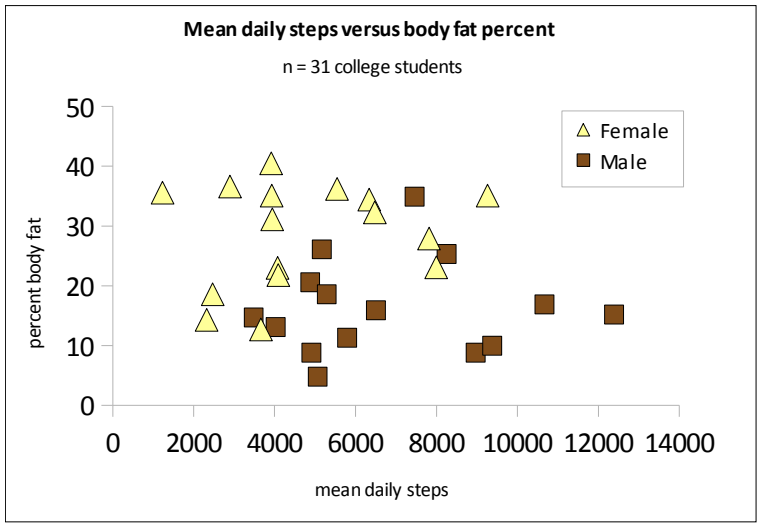
Gender and mean daily steps

Of the 31 students, 16 students were female. The female students ranged in age from 18 to 26 years old. The female students averaged 4747 steps per day.

Of the 31 students, 15 students were male. The male students ranged in age from 19 to 26 years old. The male students averaged 6815 steps per day. The difference between the average daily steps for females and males was statistically significant (p-value = 0.03).

Body fat and mean daily steps

There was no statistically significant correlation between mean daily step counts and body fat percentage. This lack of correlation held for both females and males.



This study finds no relationship among these 31 students between their level of activity and body fat percentage.

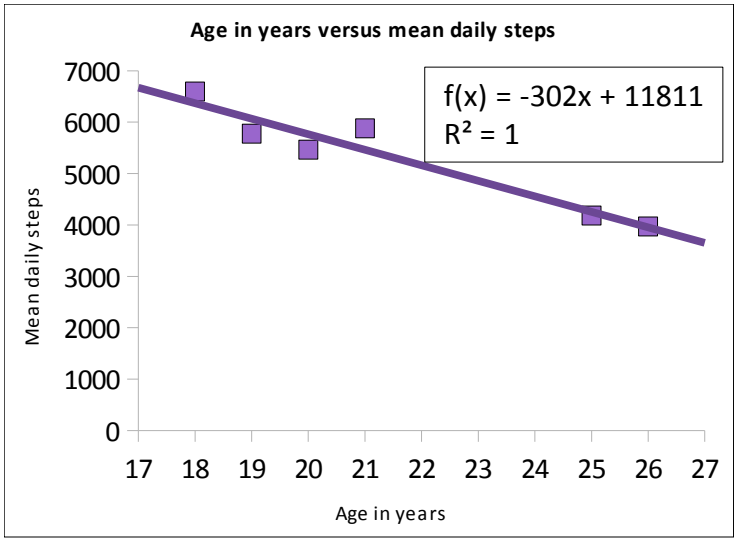
Of the 31 students in the study, seven females measured as being overfat (a body fat percent between 32% and 39%), and one was categorized as being obese (>39% body fat). Three males were measured as being overfat (20% to 25% body fat), and one was categorized as obese (>25% body fat). 12 of the 31 students (39%) are overfat or obese.

With active lifestyles typically categorized as being above a mean of 8000 steps per day, the data suggests that more than one third of this student sample is essentially already an at risk group. Only six students averaged more than 8000 steps per day.

The lack of a correlation might be considered in the following way. Only six students were attaining levels of activity that would be expected to have some impact on body fat levels. The remaining students have levels of activity that would not be expected to impact body fat percent. The students in the study included both students living in the dormitory and those living off-campus. As a whole, the students, whether resident on campus or living off campus, are not significantly active as a group.

Age and mean daily steps

There was a strongly significant negative correlation between age and mean daily steps. Although the age range was small, the results were still significant.



The rate of fall for the students is on the order of three hundred fewer steps per year of age. For each year older, the students lost an average of 300 steps. Given that the sample is active at levels below that of an active lifestyle, and that 39% of the sample is overfat or obese, this decline in activity level with age is of strong concern.

The data is only a small slice of years. The narrow range leaves open the question of what happened prior to 18 years old and what happens after 26 years old. This is an area of ongoing study.

Conclusions

The leading cause of adult death in the FSM are non-communicable lifestyle diseases. The above study, albeit of a small number of students attending college, is cause for concern. Activity levels as measured by pedometers are below those recommended for a healthy lifestyle, activity levels are declining with age, and 39% of the sample is already in a body fat category that places the participant at an elevated risk for non-communicable diseases.

The author would like to thank the students who participated in this study and the FSM Department of Health for their assistance in this study.

Dana Lee Ling
28 May 2008

College of Micronesia-FSM
Pohnpei FM 96941