

Activity levels for small samples of second grade 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 for students in second grade classes at different schools as measured by pedometers. The twin goals were to determine whether the second grade students were differently active as measured by pedometers than a previous study of students in a college statistics class. The study also intended to look for differences between a school located in the island's main town and one located outside the main town.

The Seventh Day Adventist school (SDA) is a private school located in Kolonia, the largest town on Pohnpei. Kolonia is effectively the city center. While a few students come into the school from outside of Kolonia, they are the exception. Twenty second grade students at the school participated in the study. The twenty students who were given pedometers and reported back data represented a complete second grade class at the school.

Palikir Elementary School is located about nine kilometers southwest of Kolonia. The students come from the surrounding rural area. Thirty-four students were in the second grade class at the school. Although all thirty-four students were provided with pedometers, only sixteen reported back pedometer data.

The students were asked to report back seven days worth of data. Attempting to run a longer study with subjects as young as second graders appeared to be unrealistic based on pilot run at an anecdotal level.

Student gender and age were also reported. The Palikir sample consisted of nine females and seven males. The SDA sample consisted of nine females and eleven males. The average age for the Palikir sample was 8.56 years old. The average age for the SDA sample was 7.45 years old. This difference was statistically significant (p -value < 0.01).

Mean daily steps for college students and second grade students

The mean for 31 college students enrolled in a statistics course was 5827 steps per day. The mean for all 36 second grade students was 6666 steps per day. This difference was statistically significant (p -value = 0.04). The second grade students were more active than the college students. While this result is consistent with increasing steps per day with decreasing age, the value is lower than that predicted by a linear regression run on the college student data alone.

Of the 31 college students, 16 students were female. The female college students ranged in age from 18 to 26 years old. The female college students averaged 4747 steps per day. The female second grade students ranged in age from six to ten years old with a mode of eight. The female second grade students averaged 4497 steps per day.

Of the 31 college students, 15 students were male. The male college students ranged in age from 19 to 26 years old. The male college students averaged 6815 steps per day. The male second grade students ranged in age from seven to eleven years old with a mode of eight. The male second grade students averaged 6997 steps per day.

The female college students were more active than the second grade female students as

measured by a pedometer. The opposite was true for the males, with the male second grade students more active than the male college students.

Differences between the schools

The average for the sixteen Palikir Elementary School second grade students was 5123 steps per day. The average for the twenty Seventh Day Adventist second grade students was 6246 steps per day. The standard deviations for both groups were high (2250 steps and 3677 steps respectively), as a result the difference in the averages between the two schools was not statistically significant. There is no difference in activity levels between the two sets of second grade students as measured by daily step counts using a pedometer.

Gender differences for the second grade students

Given that the two schools did not perform statistically differently as measured by the daily mean steps, combining the genders for both schools appears to be reasonable. The result for the 18 females is a mean daily step count of 4497 steps. Combining the males for the two schools also results in 18 students. The 18 male students had a mean daily step count of 6997 steps. The difference for these two means was statistically significant (p -value = 0.02).

The male students were more active than the female students. No exploration of possible causes of this difference were attempted in the study. The data does suggest that females may be relatively physically inactive from early in life.

Conclusions

This informal study is limited in its power to generate broad conclusions. The data does suggest, however, that levels of activity are fairly low among second grade students at these two schools.

The gender difference between the male and female second graders is potentially a cause for concern. Females may become differentially more inactive earlier in life than males, leaving them more vulnerable to non-communicable lifestyle diseases earlier in life.

The above two tentative conclusions suggest that putting in place a structured daily physical education or exercise and sport program would be valuable in the schools.

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