

# What is the Physical Activity of Emergency Physicians (Residents and Attendings) During a Shift, Measured in Steps Walked? The STEP study: Quantitative Study of Steps Taken in an Emergency Program (STEP)

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## ABSTRACT

**Background:** Physician wellness is multifactorial. A benchmark of the physical activity component of well has been said to be the number of steps walked, with 10,000 steps per day as a CDC general guideline. 7,000 to 8,000 steps per day would be needed to meet the CDC's recommendation of 150 minutes of moderate activity a week. **Aim of study:** The aim of this study was to assess the number of steps taken by emergency medicine resident physicians and emergency medicine attending physicians at work during shifts. **Materials and Methods:** The design was an observational, prospective cohort study of emergency medicine residents and emergency medicine attendings in a three campus community/University affiliated system. A pedometer was placed or provided by a member of the study team on the participant. The participant completed a confidential study sheet with the number of steps taken (pedometer reading). A minimum of 10 shifts of emergency resident data per campus and 10 shifts of EM attending data per campus was obtained. **Results:** There were 128 observations in the study. There was only one observation that reached 10,000 steps. (1/128=0.7%) Residents and Attendings did not differ statistically in reference to steps per hour, percent achieving 10,000 steps or in average steps per shift. Although the total number of steps per shift was higher for residents (NS), residents worked longer shifts (11.6 hours average) than did Attendings (10.9 hours average. (p=.01) **Conclusions:** There was only one observation that reached 10,000 steps. (1/128=0.7%) Residents and Attendings did not differ statistically in reference to steps per hour, percent achieving 10,000 steps, or in average steps per shift. If 10,000 steps is an important benchmark for daily steps for fitness, then it is clear that other walking would have to be done in addition to working

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a shift, as achieving 10,000 steps on a shift was extremely rare in this study.

**Keywords:** Physician Wellness, Resident Wellness, 10,000 Steps Program.

## INTRODUCTION

**What is physician wellness?** An article in the Journal of Graduate Medical Education notes, “Many who have addressed physician wellness imply, by default, that it is a lack of burnout, but this is as inadequate as defining health as a lack of disease.” The article makes the case that we ought to develop “a conversation about what makes a physician well [1].” Eckleberry-Hunt and colleagues’ note that physician wellness has been largely discussed in the context of physician burnout. However, the literature appears to be changing in the direction of “*what makes a physician well*”---and thus there appears to be evidence of a broadening of research thinking to include the physical health of physicians. Clearly, the challenge of supporting physician wellness is multifactorial. As noted by Jacobson, “Stress, sleep deprivation, poor diet and lack of exercise” can make physicians “unwell [2].” In a recent article, Josephson and her team looked at the physical activity of a cohort of emergency medicine residents. The research looked at the number steps taken in a 12-hour shift. The target number was that of “10,000” steps. Only 9.9% of residents reached the 10,000-step threshold [2].

**Why the 10,000-step benchmark?** 10,000 steps have been used by other researchers as a guideline, in that it is consistent with physical activity guidelines used by the CDC [3].

“Walking 10,000 steps is not an official recommendation from the Centers for Disease Control and Prevention,” notes Dr. Tudor-Locke. To meet the CDC’s recommendation of 150 minutes of moderate activity a week “would take about 7,000 to 8,000 steps [4].”

Other organizations have supported the goal of 10,000 steps, including the Mayo Clinic [5]. How many steps are enough? “10,000 steps appear to be a reasonable estimate of daily activity for apparently healthy adults [4].” 10,000 steps correlate with approximately 5 miles of walking. Tudor-Locke proposed preliminary indices for pedometer-determined physical activity. They are as follows:

- <5,000 “sedentary”
- 7500-9999: “somewhat active”
- >10,000 “active”
- >12,500 “highly active”

Thus, the use of a pedometer to *measure physical activity* is common in such research models. In addition, the use of pedometers *as part of a process to increase physical activity* has been a focus of research. A systematic review of pedometer-use studies found that the use of a pedometer was associated with significant increases in physical activity and with significant decreases in body mass index and blood pressure [6]. Factors related to the success of such programs using pedometers have been discussed [4,7-9].

## MATERIALS AND METHODS/RESEARCH DESIGN AND METHODS

The design was an observational, prospective cohort study of emergency medicine residents and emergency medicine attendings in a three campus community/University affiliated system. A pedometer was placed or provided by a member of the study team on the participant. The participant completed a confidential study sheet with the number of steps taken (pedometer reading). A minimum of 10 shifts of emergency resident data per campus and 10 shifts of EM attending data per campus was obtained.

## RESULTS

There were 128 observations in the study.

There was only one observation that reached 10,000 steps. (1/128=0.7%).

Residents and Attendings did not differ statistically in reference to steps per hour, percent achieving 10,000 steps or in average steps per shift. In a recent article, Josephson and her team looked at the physical activity of a cohort of emergency medicine residents. The research looked at the number steps taken in a 12-hour shift. The target number was that of “10,000” steps. Only 9.9% of residents reached the 10,000-step threshold [2]. Thus, the percent reaching 10,000 steps in our data is much lower.

Although the total number of steps per shift was higher for residents (NS), residents worked longer shifts (11.6 hours average) than did Attendings (10.9 hours average. (p=.01) (Table 1).

**Table 1.** STEP Study Data: Residents and Attendings Compared.

STEP Study Data: Residents and Attendings Compared			
	Resident (N=77)	Attending (N=51)	
Steps per hour	397 (stdev 138)	394 (stdev 194)	p=0.467
% achieving 10,000 steps	1/77=1.2%	0/51=0%	p=0.477
Average steps per shift	4763 (stdev 1659)	4189 (stdev 1804)	p=0.12
Average number hours on shift	11.6 (stdev 1.3)	10.9 (stdev 1.25)	p=.01

## DISCUSSION

There was only one observation that reached 10,000 steps. (1/128=0.7%) Thus, achieving 10,000 steps on a shift was very unusual. Residents and Attendings did not differ statistically in reference to steps per hour, percent achieving 10,000 steps, or in average steps per shift. In a recent article, Josephson and her team looked at the physical activity of a cohort of emergency medicine residents. The research looked at the number steps taken in a 12-hour shift. The target number was that of "10,000" steps. Only 9.9% of residents reached the 10,000-step threshold [2]. Thus, the percent reaching 10,000 steps in our data is much lower.

## CONCLUSION

If 10,000 steps is an important benchmark for daily steps for fitness, then it is clear that other walking would have to be done in addition to working a shift, as achieving 10,000 steps on a shift was extremely rare in this study. There was only one observation that reached 10,000 steps. (1/128=0.7%) Residents and Attendings did not differ statistically in reference to steps per hour, percent achieving 10,000 steps, or in average steps per shift.

## CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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