

# General Report – Number of Steps Research

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Team: P15001: Active Ankle Foot Orthotic

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## Related System: Actuate Muscle (ABBBBA)

The purpose of this research is to find the number of steps that an average user will take in a typical day.

## Research

Original findings were based on a New York Times article<sup>[1]</sup> claiming that average American adults take 5,340 (men) and 4,912 (women) steps per day.

After a design review it was suggested that the actual number of steps our end users take will most likely be less than the average American. Further research was thus conducted.

A NCBI report<sup>[2]</sup> was found that studied the reliability of pedometer data in samples of youth and older women. An expert from the research is provided in Figure 1.

### Older Women Sample (N = 270)

|                               |               |
|-------------------------------|---------------|
| All                           | 4,352 (2,981) |
| Age                           |               |
| 40- to 49-year-olds (N = 18)  | 4,359 (2,300) |
| 50- to 59-year-olds (N = 101) | 5,047 (3,271) |
| 60- to 69-year-olds (N = 98)  | 3,888 (2,572) |
| 70 years and older (N = 53)   | 3,773 (3,051) |

Figure 1: Age of Women (N=samples) Mean Steps/Day (SD)

Another NCBI report<sup>[3]</sup> studied the pedometer-measured physical activity and health behaviors in United States adults. A relevant table from the research is provided in Figure 2.

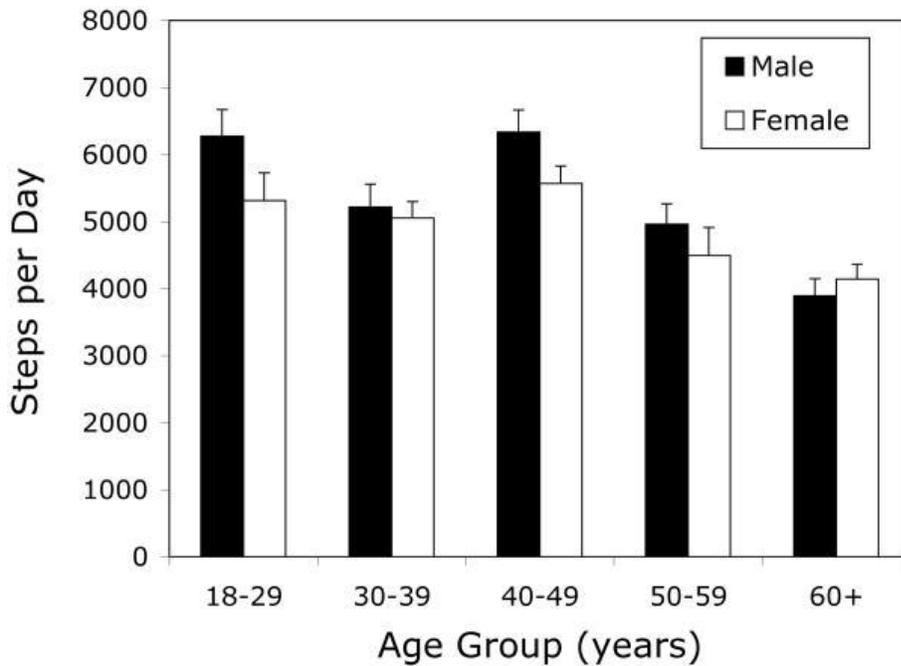


Figure 2: Pedometer data by age and gender

Upon these findings it became evident that the average age of stroke survivors (our primary end users) must be estimated in order to properly approximate the number of daily steps.

The Internet Stroke Center <sup>[4]</sup> states that “Nearly three-quarters of all strokes occur in people over the age of 65. The risk of having a stroke more than doubles each decade after the age of 55.”

The American heart association has published data that shows the prevalence of stroke vs percent of population. Admittedly the percent of population may be subject to interpretation but the data seems indicates that majority of strokes occur in people over the age of 60 as shown in Figure 3.

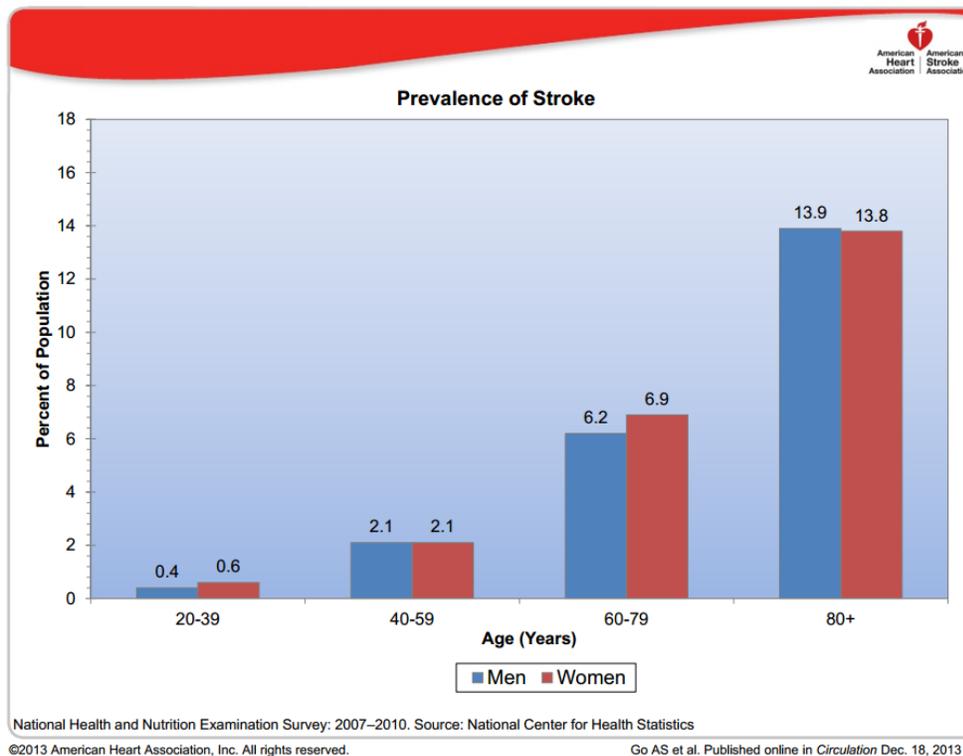


Figure 3: American Heart Association Prevalence of Stroke

## Conclusions

These findings indicate that it is safe to assume our users will not be taking the average American’s amount of daily steps (approx. 5,000). It based on the tables it is likely that the clients will not take more than 4,000 steps per day. Furthermore, the fact that our clients have foot drop and are most likely recovering from a stroke could mean they take lower steps than their peers. Based on our teams visit to the Nazareth Clinique, we concluded that it was reasonable to assume a 75% multiplier to an average person the same age as our clients (**3,000** steps per day).

## Citations

- [1] PARKER-POPE, TARA. "The Pedometer Test: Americans Take Fewer Steps." *The New York Times*, n.d. Web. 10 Nov. 2014. <[http://well.blogs.nytimes.com/2010/10/19/the-pedometer-test-americans-take-fewer-steps/?\\_php=true&\\_type=blogs&\\_php=true&\\_type=blogs&\\_r=2](http://well.blogs.nytimes.com/2010/10/19/the-pedometer-test-americans-take-fewer-steps/?_php=true&_type=blogs&_php=true&_type=blogs&_r=2)>.
- [2] Strycker, Lisa A., Susan C. Duncan, Nigel R. Chaumeton, Terry E. Duncan, and Deborah J. Toobert. "Abstract." *National Center for Biotechnology Information*. U.S. National Library of Medicine, 17 Feb. 2007. Web. 10 Nov. 2014. <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1810544/>>.
- [3] David R. Bassett, Jr, Holly R. Wyatt, Helen Thompson, John C. Peters, and James O. Hill. "Abstract." *National Center for Biotechnology Information*. U.S. National Library of Medicine, Oct. 2010. Web. 10 Nov. 2014. <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2927728/>>.
- [4] "The Internet Stroke Center." *Internet Stroke Center Stroke News*. N.p., n.d. Web. 07 Nov. 2014. <<http://www.strokecenter.org/patients/about-stroke/stroke-statistics/>>