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This week an article written by five members of the Department of Emergency Medicine at George Washington University in Washington DC was published in the Annals of Emergency Medicine.

The authors reviewed George Washington University emergency department records over a forty three month period and documented 41 cases where individuals reported falling from a Segway PT.

In December 2007 Disability Rights Advocates for Technology, "DRAFT", released a White Paper, which is available at [www.draft.org](http://www.draft.org) which detailed the types of injuries associated with the use of Segways, Wheelchairs and Scooters. The data in that white paper indicated the most prevalent serious injury associated with all three devices was that of head strike. The white paper also noted that the two reported deaths resulting from Segway use were due to head strike to riders who were not wearing a helmet. Segway Inc.'s User Guide and Safety Material including safety video also prominently focuses on the dangers of head strike from utilizing its device and its recommendation for operators to always wear a helmet.

DRAFT strongly endorses Segway Inc.'s recommendation that operators **always** wear a helmet.

If not for the tragic accidental death of Segway Inc.'s owner Jimi Heselden this weekend this article released on Tuesday would have attracted very little attention. However with Mr. Heselden's death and the coincidental timing of the articles release it was quickly taken out of context and used by many to reach conclusions not supported by any data in the article.

The article's editor in the capsule summary concluded the following from their review of this article:

"**all** forms of motor vehicles are associated with injuries"

"this case series describes injuries and 41 patients using a Segway personal transporter"

"ten of the patients seeking emergency care after injuries sustained while riding personal transporters were admitted; four of those patients were admitted to the intensive care unit for neurologic observation"

Those in the media who are reporting that this article supports the assertion that "Segway Injuries on the Rise" have either not appropriately researched the article or have failed to consider several relevant factors related to this particular "study" which dramatically impact the conclusions.



## **BACKGROUND:**

### **Location**

George Washington University Hospital Emergency Department is located just seven blocks from the National Mall in Washington DC an area which has the single largest concentration of Segway tour group patronage on earth.

While the authors of the article conducted no interviews with the associated patients they have concluded from file reviews and anecdotal evidence that many of the patients were using a Segway PT on a tour when they sustained their injuries.

Since the introduction of the Segway PT businesses utilizing the device to conduct tours and their patronage have risen dramatically over the years. The area surrounding the National Mall in Washington DC has in addition to the three established Segway tour companies, Capital Segway, City Segway and Segs in the City, a number of other "rogue", small fly-by-night operations, offering tours and the rental of Segway PTs.

Segway offering tour groups have been in existence around the National Mall since 2004 and with the introduction of the Segway PT i2 which many find more intuitive and easier to control than the previous generation Segway PTs and many tour groups began deploying in late 2007 patronage of the tours exploded in 2008 reportedly by as much as 500% by some tour operators.

As the experience level has increased with the operation of these new ventures many Segway tour operators have modified their policies and practices both to increase the safety of the neophyte rider and to enhance the overall experience for their patrons.

Many have found that the addition of headphones which aid in the communication between the safety/guide and the patrons as well as utilization of the streets and bike paths in lieu of sidewalks has dramatically decreased the number of incidents which could result in injury.

Capital Segway is the only authorized Segway tour group in Washington DC and as such must maintain a strict regimen of operation and safety guidelines to maintain this designation by Segway Inc. This includes a requirement that Segway Inc.'s User Guide and Safety Material including safety video be viewed by each tour rider and that they satisfactorily complete training in the use of the Segway PT including learned techniques for mounting and dismounting and other operational characteristics of the Segway PT.

All riders are required to wear a helmet, including the tour guide and each tour maintains a ratio of one guide/safety guide for each eight patrons.



The other two established Segway tour companies have similar stated programs however they have no requirement other than those self-imposed to adhere to a specific safety policy. Both have stated policy which requires patrons to wear a helmet. Only one company, Segs in the City offers Segway rentals.

The "rogue" tour operators have been reported to require no training, require no helmets, and conduct operations in a manner which would result in conditions which would increase the likelihood of an incident for a patron which could result in an injury. DRAFT strongly urges all tour operators to provide proper training and to require helmets for **all** riders.

## Conclusions

The risk associated with the use of the Segway PT have been apparent from the outset of its introduction in 2002 and have been the subject of extraordinary focus by Segway Inc. in all of its User Guide and Safety Material including manuals, videos and required training criteria. Responsible tour operators require the viewing of the Segway safety video by all patrons in conjunction with their training prior to their participation in their guided tour.

The assertion that "self-balancing personal transporter injuries are significant and seem to be increasing" reflects that the injuries reported on are only those requiring an emergency room visit, and that the number of "self-balancing personal transporter" riders is increasing.

The number of patrons participating in Segway Tours on and around the National Mall has grown exponentially, particularly from 2007 to 2008 and each year thereafter. The expectation that there would be an increase in the visits to the emergency department during this period would be the expected result.

The report indicates that during this 44 month period that there were no visits to their emergency department by people with disabilities who use Segway PTs. People with disabilities using Segway PTs and others who use them on a daily basis have become familiar with not only the operational characteristics of the Segway PT but spatially the relationship of the device to barriers and obstacles that they might encounter which would increase the likelihood of an incident which would result in injury.

This together with their data identifying no admissions during periods of low tourist activity would support their assertions that most of their patients were a result of an injury sustained while taking a tour or perhaps renting a Segway PT. Even though there was no data collected or at least presented that would identify the experience level of their patients with the operation of the Segway PT anecdotally it seems clear that the greatest risk for injury exists for those who are new and inexperienced riders.

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The authors failed to place the number of reported Segway injuries into any context with other injuries of the more than 200,000 admissions during the same period. Its principal author acknowledging in a post release interview “that her study was very small and that 41 injuries were a tiny fraction of the George Washington University Hospital emergency visits that totaled 49,000 to 63,000 a year.”

While this article does not present any new information regarding risks and types of injury that was not disclosed by Segway Inc. and the white paper published by Disability Rights Advocates for Technology it does document the types of injuries that can and will occur in the event of a head strike, particularly when not wearing a helmet. The DRAFT white paper further documents that there have been incidents which have resulted in death from head strikes not just from Segway PTs but also wheelchairs and scooters alike.

In large measure we would agree with the editor's capsule summary of this study with the exception of the need for a specific E-code for injuries related to personal transporters. Any other conclusions drawn from this particular article are not supported by any credible research, data, or documentation.