University of Miami KiDZ Neuroscience Center at the Miami Project to Cure Paralysis

Position Statement on Electric Scooters ("E-scooters")

Best Practices for Safe Micromobility

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By: Michelina M. Witte, Ph.D., M.S. and Daniel Adili-Khams

With the increase in popularity and widespread use of electric scooters ("e-scooters"), the University of Miami KiDZ Neuroscience Center puts forth the following guidelines to promote the safe and proper use of e-scooters for reducing risk of injury.

Definition. An electric scooter, also known as an "e-scooter," is a small, lightweight (usually between 20 - 60 lbs), two-wheeled vehicle that is powered by an electric motor and is designed for short-distance travel. It is classified as a form of micromobility, which includes forms of transport that can occupy space alongside bicycles. The Federal Highway Administration defines micromobility as any small, low-speed transportation device that is human- or electric-powered (1).

- E-scooters are different from motorcycles because they have a step-through frame instead of being straddled.
- E-scooters are different from electric bicycles, which can be propelled by pedaling in addition to battery power.

A. **Features:** E-scooters have a deck for a single rider, a floorboard, and handlebars. The rider stands while riding. They usually have two wheels between 8 and 11 inches (20–28 cm) in diameter, connected by a platform on which the rider stands, with a handlebar for support and steering.
B. **Power:** Electric scooters are powered by a rechargeable battery that drives one or more electric motors. They can also be powered by human power.
C. **Speed:** The maximum speed of an electric scooter on a paved level surface is usually no more than 20 miles per hour (mph).
D. **Range:** The range of an electric scooter can vary considerably depending on the model, but some can range from 6 to 124 miles on a single charge.
E. **Benefits:** Electric scooters are an environmentally friendly alternative to traditional motor vehicles and can help reduce air pollution and congestion.

Legislation. The following section contains the relevant state of Florida statutes pertaining to e-scooters.

- **Definition:** Florida Statute § 316.003 (41) defines a "micromobility device" as "any motorized transportation device made available for private use by reservation through an online application, website, or software for point-to-point trips and which is not capable of traveling at a speed greater than 20 miles per hour on level ground."
- **Driver's license**: A driver's license is not required to operate an e-scooter in the state of Florida (§ 316.2128 (3)), however many scooter-sharing services, such as Lime, Uber, Lyft or Bird, require users to be at least 18 years old, unless local rules permit otherwise. Most scooter sharing companies verify user age during account setup and may ask the user to scan their ID or driver's license for verification.
- **Protective gear**: Florida Statute § 316. 2068 states that a person who is under the age of 16 years may not operate, ride, or otherwise be propelled on an electric personal assistive mobility device unless the person wears a bicycle helmet that is properly fitted, that is fastened securely upon his or her head by a strap, and that meets the standards of the American National Standards Institute (ANSI Z Bicycle Helmet Standards), the standards of the Snell Memorial Foundation (1984

Standard for Protective Headgear for Use in Bicycling), or any other nationally recognized standards for bicycle helmets which are adopted by the department.

- **Yield to pedestrians**: Riders must yield to pedestrians (§ 316.2128 (e)).
- **Alcohol and drugs**: Riders must not be under the influence of drugs or alcohol. (Florida § 316.193 explicitly prohibits operating a vehicle while impaired by alcohol, drugs, or other substances that impair cognitive abilities. Florida § 316.2065 classifies bicycles and scooters as vehicles, subjecting them to the same DUI laws as motorists.)
- **Municipal restrictions**: Cities and municipalities can restrict e-scooter use (Florida § 316.2128, per § 316.008), such as keeping some streets and sidewalks scooter-free.
- **Location**: Electric scooters may be operated on roads with a posted speed limit of 25 mph or less and on sidewalks, if the person operating the device yields the right-of-way to pedestrians and gives an audible signal before overtaking and passing a pedestrian (Florida § 316.2068 (e)).
- **Registration and insurance**: E-scooters and micromobility devices are not required to meet registration and insurance requirements (Florida § 316.2068 (3)).

Considerations for safe use.

- **Location**: While most e-scooter crashes occur on sidewalks, this is because most e-scooter riders prefer to ride on the sidewalk versus the roadway. Recent research has shown that e-scooter riders were twice as likely as bicyclists to get injured because of a pothole or crack in the pavement or other infrastructure like a signpost or curb, while bicyclists were 3 times as likely as scooter riders to be hit by motor vehicles (2). These disparities in injury rates have to do with where e-scooters tend to ride (sidewalks) vs. where bicyclists tend to ride (roadways) (3).
    - **When available, e-scooters should be ridden in bike lanes**: When possible, use bike lanes to avoid pedestrians and motorists.

    - When sharing space with pedestrians, e-scooter riders should not exceed 7mph, given the speed differential between pedestrians and those operating micromobility devices.
    - **Ride in protected bike lanes whenever possible:** In 2019, a 13-year study of 12 U.S. metropolitan cities compared data collected from cities that built protected bike lanes vs. those that did not. Based on the findings, it is estimated that a city that adds protected bike lanes will see an average projected reduction in vulnerable road user deaths by 44%, and a reduction in serious injuries by 50% (4).
- **Wear a helmet**: A helmet that fits well and meets safety standards is essential for protecting your head and brain from injury. The use of bicycle helmets was found to reduce head injury by 48%, serious head injury by 60%, traumatic brain injury by 53%, face injury by 23%, and the total number of killed or seriously injured cyclists by 34% (5).
- **One rider per scooter**: E-scooters are designed for use by, and to bear the weight of, a single rider, meaning only one person should ride a single-use scooter at any given time. Related to the fact that they are designed to bear the weight of just one person, loss of control, mechanical failures and increased risk of severe injury (6) are among the main reasons to not to try to accommodate more than one person when riding an e-scooter.
- **Wear protective clothing**: Knee and elbow pads can lessen the impact in the event of a fall. Long sleeves and pants can protect your skin from cuts and scrapes.
- **Riding during pre-dawn/post-dusk hours**: Similar to bicycles, to increase visibility, a white light should be mounted to the front and a red light should be mounted to the back of the scooter. It is also wise to wear clip-on lights and/or reflective components on one's front and back to increase visibility.
- **Check the scooter before you ride**: Before each ride, inspect the scooter's tires, brakes, acceleration, battery level, and other components to ensure they are functioning properly.
- **Follow traffic rules**: Electric scooters are vehicles and as such, should follow the same traffic rules as other similar vehicular devices, i.e., bicycles, for safe and predictable use.

- **Avoid bad weather**: Avoid riding in bad weather conditions, as slick conditions can cause scooter wheels to lose traction and to skid, increasing the likelihood of injury from loss of control.
- **Stay alert, don't use your cell phone while riding**: Stay alert to surroundings and operate the e-scooter with both hands; doing so requires avoiding using your phone while riding.
- **Slow down**: Slow down before turning or looking back.
- **Use hand signals**: Similar to when riding a bicycle, using hand signals to indicate when and where one is about to turn increases predictability.
- **Practice in a good location**: Choose a large, flat, open area to practice, such as a parking lot or empty field.
- **Where to park**: If parking an e-scooter outside, park it at least 4 - 5 feet clear of the sidewalk to allow pedestrians and those in wheelchairs to safely pass with ease. Scooters can be locked on public bike racks. Avoid parking near fire hydrants, emergency facilities, loading zones, and railroad tracks.
- **Map out a safe route and use appropriate navigation tools**: Try to avoid mapping a route that involves busy roads and intersections; and roads that exceed speed limits over 25 miles per hour. Include routes with bike paths. Applications such as Google Maps, Apple Maps, MapMyRide, Strava and Scoot Route allow users to map out safe pedestrian, bicyclist and scooter routes that include bike paths and sidewalks.

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