

## OHSU study finds increased injuries, deaths among off road vehicle riders

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An assessment of injuries from the Oregon Trauma Registry and the Oregon Health & Science University Trauma Registry found an alarming trend in the number of injuries due to off-road vehicles. Richard Mullins, M.D., chief of trauma/critical care at OHSU Hospital reviewed reports of injuries and death rates among riders of both four-wheel all-terrain vehicles and two-wheel off-road motorcycles. He found a 76 percent increase in patients injured in off-road vehicle accidents. His report is published in the February issue of the Journal of the American College of Surgeons. As part of the statewide trauma system, hospitals are required to submit data to the Oregon Trauma Registry regarding all trauma cases. OHSU maintains its own trauma registry in addition to submitting data to the state. Mullins noticed an increased number of patients with injuries from off-road vehicles and decided to investigate. Further analysis of both registries showed a significant increase in the number of patients requiring care in Oregon's trauma system as a result of injuries sustained while riding an off-road vehicle. Between 1998 and 2003, the Oregon Trauma Registry recorded more than 1,200 injuries from off-road vehicles. Sixty-two percent of those patients were injured riding an ATV, and 38 percent were injured riding an off-road motorcycle. Mullins compared data from the first three years (1998 - 2000) to the second three years (2001-2003), and found a 78 percent increase in injuries. Deaths increased from four to 10 during the same time periods. More than 70 percent of patients injured required hospitalization. Mullins found 289 patients had been treated at OHSU between 1998 and 2005. Injuries increased from 80 (1998 - 2001) to 209 (2002 - 2005). Sixty-four percent of those patients were transferred from other trauma centers for more specialized care at OHSU. "This is a disturbing pattern," said Richard Mullins, M.D., professor of surgery in the OHSU School of Medicine. "Injuries sustained in these accidents can lead to lifelong disabilities, permanent disfigurement and even death." Fifty percent of patients in the OHSU registry sustained a head, neck or face injury. After comparing injuries from the first four years (1998 - 2001) with injuries from the second four years (2002 - 2005), Mullins found more than twice as many patients required care for severe injuries, including a sevenfold increase in the number of spine operations. This is particularly worrisome given the lifelong disability associated with these types of injuries. In both registries, more than 20 percent of the injuries were in children younger than 15. "A particularly disturbing trend appears to be that young children are being injured and killed operating a vehicle that they cannot safely handle," said Jerris Hedges, M.D., professor of emergency medicine in the OHSU School of Medicine and a co-author of the study. "Furthermore, it is particularly disturbing that dangerous riding behavior (leaps and acrobatic activities) is encouraged in advertising these vehicles." Injuries are more likely to occur on summer weekends, and a higher proportion of injuries occur in rural regions of the state. Lane and Tillamook counties lead the way with 177 and 176 injuries respectively between 1998 and 2003. The majority of patients injured were male. The OHSU registry found the majority of four-wheel off-road injuries were in men older than 50. "We are not trying to discourage the use of these vehicles," said Mullins. "However, we feel it is important for people to understand that these are not toys. While protective clothing, safety equipment and training can reduce injuries, they do not eliminate the risk involved." Only seriously injured patients treated in Oregon's designated trauma centers are included in this analysis. Patients who were not treated at trauma centers, or whose injuries did not warrant inclusion in the trauma registry, are not included. Deaths of riders that occurred at the scene are also not included. The proportion of seriously injured patients and the pattern of injuries sustained has changed little during the past few years, concluding off-road vehicles have not been designed to be any safer. This has happened as the popularity of these vehicles has grown considerably. ATV sales have tripled in the past six years. "Health care providers need to be part of the solution," said Mullins. "We need to join with the millions of responsible off-road vehicle riders in advocating for injury prevention programs, and asking the off-road vehicle industry to conduct studies to determine how to make these vehicles safer." Mullins indicated that there is an urgent need to define precisely the mechanism of the crash or the defect in the function of the vehicle that led to the crash. He proposes that if there was a greater understanding of the vehicle-related factors that led to the injury, then responsible manufacturers would know how to design safer vehicles.

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